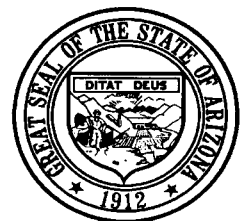


Municipal Conservation Program



5.1 INTRODUCTION

The goal of the Third Management Plan Municipal Conservation Program for the Pinal Active Management Area (AMA) is to ensure a long-term, safe, sufficient, and secure water supply to meet the current and future demands of municipal water users. In order to achieve this goal, the Arizona Department of Water Resources (Department) will develop public policies that promote the efficient use and equitable distribution of water in an environmentally and economically sound manner through long-range planning and cooperative regional efforts. The primary emphasis of the municipal conservation program, to date, has been to gradually reduce per capita water consumption, encourage the use of the best available water conservation techniques and standards, and maximize the efficient use of all water supplies including the direct use of effluent. Increasing attention is now being given to supply sources, substituting groundwater use with renewable supplies, and encouraging the use of groundwater recharge. The efficient use of all sources of water and replacement of groundwater sources by renewable supplies will ensure that the groundwater supply will be available in times of need.

Municipal water providers include cities, towns, private water companies, and irrigation districts that deliver groundwater for non-irrigation uses. The Department regulates those providers serving more than 250 acre-feet of water annually as large municipal providers. Those serving 250 acre-feet or less annually are regulated as small municipal providers. Municipal providers that as of January 1, 1990 were annually serving untreated water to at least 500 persons or supplying at least 100 acre-feet of untreated water during a year are regulated under the municipal conservation program as large untreated providers.

The municipal sector in the Pinal AMA includes residential, commercial, and industrial uses and accounts for about 2 percent of total AMA water use. Although direct use of Central Arizona Project (CAP) water began during the second management period, the AMA's four large municipal providers that serve water to cities and towns are still dependent on mined groundwater. The Assured Water Supply Rules (AWS Rules) require that all new development in the AMA replenish a portion of mined groundwater, which will lead to reductions in overdraft in the long-term. Use of reclaimed wastewater (effluent) for irrigation of turfed areas is increasing slowly but only serves a small proportion of municipal demand. Modest growth is expected in the municipal sector as new residents continue to move to the area. The AMA's population has increased at a rate of about 2 percent per year.

Reductions in the gallons per capita per day (GPCD) rate of large municipal providers are required by the Groundwater Code (Code). Conservation programs have been instituted by some of the water providers in response to regulatory requirements of the First and Second Management Plans. However, the expected reductions due to conservation efforts have generally not been met, and a series of hot, dry weather years in the mid 1990s has caused some increases in exterior water use and GPCD rates. Increased conservation efforts combined with increases in the use of renewable supplies are needed in order to make progress toward the management goal of the AMA.

5.2 STATUTORY PROVISIONS

5.2.1 Per Capita Requirements for Large Municipal Providers

The Code requires that the management plans for each AMA include a conservation program for municipal uses. For the First, Second, and Third Management Plans, the Code expressly mandates that the programs require reasonable reductions in per capita use. A.R.S. §§ 45-564(A)(2), 45-565(A)(2) and 45-566(A)(2). To comply with this mandate the Department developed the Total GPCD Program. As originally enacted, the Code did not exempt any municipal providers from the requirement to achieve reductions in per capita use. Consequently, the Municipal Conservation Program for the First Management Plan established maximum GPCD requirements for all municipal providers, regardless of size.

In 1986, the Legislature amended the statutes governing the Second and Third Management Plans to exempt “small municipal providers” from the requirement to achieve reasonable reductions in per capita use. Laws 1986, Ch. 107, §§ 2 and 3. Instead of requiring small municipal providers to achieve reductions in per capita use, the statutes require the director to establish “reasonable conservation requirements for small municipal providers.” A.R.S. §§ 45-565(A)(4) and 45-566(A)(4). Until 1994, “small municipal provider” was defined in the Code as “a city, town, private water company, or irrigation district that supplies water for non-irrigation use, serves less than 500 people and supplies less than 100 acre-feet of water for non-irrigation use during a calendar year.” Laws 1986, Ch. 107, § 1. In 1994, the Legislature changed the definition of small municipal provider to “a municipal provider that supplies 250 acre-feet or less of water for non-irrigation use during a calendar year.” A.R.S. § 45-561(13).

Two other statutory amendments have created exceptions to the requirement that municipal providers achieve reasonable reductions in per capita use. In 1991, the Legislature exempted large untreated water providers from the requirement to achieve reductions in per capita use. Laws 1991, Ch. 211, §§ 16, 17, and 18. In 1992, the Legislature enacted legislation requiring the director to include in each management plan a Non-Per Capita Conservation Program (NPCCP) for large municipal providers as an optional, alternative program to the program requiring reductions in per capita use. Laws 1992, Ch. 183 §§ 5, 7, and 9. Those amendments are described in greater detail in the following two sections.

5.2.2 Conservation Requirements for Large Untreated Providers

As a result of legislation enacted in 1991, large untreated water providers are exempt from the requirement to achieve reasonable reductions in per capita use. Instead of requiring reductions in per capita use by large untreated water providers, the director is required to establish “conservation or rate of use requirements for deliveries of untreated water by large untreated water providers based on the use of the latest commercially available conservation technology consistent with reasonable economic return.” A.R.S. § 45-566(A)(3).

“Large untreated water provider” is defined in the Code as “a municipal provider that as of January 1, 1990 was serving untreated water to at least 500 persons or supplying at least 100 acre-feet of untreated water during a calendar year.” A.R.S. § 45-561. “Untreated water” is defined as “water that is not treated to improve its quality and that is supplied by a municipal provider through a distribution system distinct from the provider’s potable water distribution system.” *Id.* (A complete list of municipal providers in the Pinal AMA, including large and small providers, as well as large untreated providers, is contained in Appendix 5A.)

5.2.3 Non-Per Capita Conservation Requirements for Large Municipal Providers

In 1992, the Legislature enacted legislation requiring the Department to include in the management plans an NPCCP as an optional, alternative program to the program requiring reasonable reductions in per capita use. Each provider regulated under the NPCCP is required to implement specific residential and non-residential conservation programs for interior and exterior water use, a public education program relating to water conservation, and a program to meter most service area connections. Additionally, providers that are regulated under the NPCCP are required to either reduce their groundwater pumping consistent with the AWS Rules (A.A.C. R12-15-701, *et seq.*) or eliminate their use of mined groundwater by the year 2010. The NPCCP is a performance-based program with compliance determined by the effective implementation of stipulated conservation measures and the required groundwater reduction. For the Third Management Plan, the statutory requirements for the NPCCP are found at A.R.S. § 45-566.01.

5.2.4 Conservation Requirements for Individual Users

In addition to requiring the director to establish conservation requirements for municipal providers, the Code requires the director to establish in the Third Management Plan “such other conservation measures as may be appropriate for individual users.” A.R.S. § 45-566(A)(2). An “individual user” is a person or entity that receives water from a municipal provider for a non-irrigation use. In the Third Management Plan, the director has established conservation requirements for the following individual users: turf-related facilities, large-scale cooling facilities, and publicly owned rights-of-way.

A municipal provider that receives notice of an individual user conservation requirement is responsible for complying with the requirement with respect to all individual users to which it serves water and to which the requirement applies, with two exceptions. First, the municipal provider is not responsible for complying with the requirement with respect to an individual user that has received notice of the requirement directly from the director. In that case, the individual user is responsible for complying with the requirement. Second, if the requirement is substantially identical to an industrial conservation requirement, the municipal provider is not responsible for complying with the requirement with respect to an individual user that it has identified in writing to the Department by a specified date. If the individual user was in existence when the management plan was adopted, the municipal provider must have identified the individual user to the Department at least 90 days before the management plan was adopted. A.R.S. § 45-566(B). If the individual user came into existence after the management plan was adopted, the municipal provider must identify the individual user to the Department within 90 days after it begins serving water to the individual user. If the municipal provider identifies a new individual user to the Department more than 90 days after it begins serving water to the individual user, the municipal provider will be responsible for complying with the individual user requirement until the end of the year in which it first identifies the user to the Department. (See section 5-112 of the municipal conservation requirements.)

5.2.5 Distribution System Requirements

The director is required to include in the Third Management Plan “additional economically reasonable conservation requirements for the distribution of groundwater by cities, towns, private water companies, and irrigation districts within their service areas.” A.R.S. § 45-566(A)(5). Distribution system requirements for municipal providers consist of a requirement to limit lost and unaccounted for water and a requirement to meter deliveries.

5.3 RELATIONSHIP OF SECTOR TO ACHIEVEMENT OF MANAGEMENT GOAL

Since the beginning of the first management period, groundwater use in the municipal sector has increased approximately 52 percent in the Pinal AMA. As a percent of total municipal water use, however, groundwater use is becoming a smaller component, decreasing from 100 percent of total municipal use in 1980 to 87 percent of total municipal use in 1995. Municipal providers in the AMA have not made the necessary capital investments to acquire and build infrastructure to fully utilize CAP water and other renewable water supplies. Cooperative planning by the AMA’s providers and irrigation districts, however, led to the establishment of the Pinal County Water Augmentation Authority (PCWAA) in 1994 to augment water supplies by facilitating groundwater recharge in the AMA. PCWAA has recently developed a program for recharging the municipal CAP allocations of the municipal providers. Both the City of Eloy and the Town of Florence have signed agreements with PCWAA to participate in this program. It is unknown if Arizona Water Company will participate in the recharge program for its Casa Grande and Coolidge systems.

Due to the adoption of the new AWS Rules, limiting the amount of groundwater that can be used by new development, the municipal sector in the Pinal AMA is likely to further reduce groundwater dependency

during the third management period. It is expected that the City of Eloy and the Town of Florence will each receive a Designation of Assured Water Supply (Designation of AWS) in 1999.

Institutional and geographic constraints still exist for other providers, particularly the private utilities that are choosing to put the burden on the individual developers to obtain Certificates of Assured Water Supply (Certificate of AWS) for new development. This will facilitate participation in the Central Arizona Groundwater Replenishment District (CAGRD). The existence of the CAGRD could also facilitate development in outlying areas.

5.4 ASSURED WATER SUPPLY PROGRAM

The Code requires those persons proposing to offer subdivided land for sale or lease within an AMA to demonstrate that an assured water supply exists for the proposed development. A.R.S. § 45-576. An assured water supply requires that sufficient water of adequate quality be continuously available to meet the water needs of a proposed use for at least 100 years, that the use is consistent with the management plan and achievement of the management goal for the AMA, and that the financial capability to construct the necessary treatment and delivery system has been demonstrated. A.R.S. § 45-576(I).

In 1995, the Department adopted the Assured and Adequate Water Supply Rules. A.A.C. R12-15-701, *et seq.* For areas outside of AMAs, developers must demonstrate that sufficient water supplies are available for new subdivisions prior to sale by obtaining an adequacy of assured water supply or they must disclose to potential property buyers the inadequacy of the water supply. Inside AMAs more strict rules apply, including requirements that the proposed use is consistent with both the management plan and management goal of the AMA.

5.4.1 Consistency With Management Goal

In order to demonstrate that a proposed use is consistent with the management goal for the Pinal AMA, the AWS Rules require that, in most cases, applicants demonstrate that renewable supplies, including groundwater replenished by CAGRD, will be used to satisfy that portion of the water demand of the development or water service area in excess of 125 GPCD for 100 years. A.A.C. R12-15-705. For a municipal provider applying for a Designation of AWS, this means that a significant portion of the water demand for both existing and new customers must be met with water supplies other than mined groundwater.

5.4.2 Consistency With Management Plan

In order to demonstrate consistency with the AMA's management plan, the AWS Rules generally require that an applicant be in compliance with its management plan requirements. For municipal providers, the applicable management plan requirements are the municipal provider conservation requirements set forth in section 5.12 of this chapter. Thus, if a municipal provider applying for Designation of AWS is regulated under the Total GPCD Program, the provider must be in compliance with its total GPCD requirement, or the terms of a stipulation and consent order entered into to remedy non-compliance with the GPCD requirement, in order to demonstrate consistency with the management plan. See A.A.C. R12-15-706(B).

An applicant for a Certificate of AWS is not subject to the municipal conservation requirements set forth in the management plan because the applicant is not a municipal provider as defined in A.R.S. § 45-561. However, certain uses that may be associated with a certificate application, such as turf-related facilities, large-scale cooling facilities, and landscaping or water features in publicly owned right-of-way, are subject to the individual user requirements in sections 5-112(A) of the municipal conservation requirements if groundwater will be used. For all individual users, whether served by a designated or

undesignated provider, either the entity delivering water or the individual user (e.g., homeowners association, turf-related facility owner, etc.) will be responsible for compliance with the individual user requirements.

The water use of a new subdivision will also affect a large municipal provider's ability to meet its GPCD target. While the individual users or the entity delivering water to them are responsible for meeting the individual user requirements, new subdivisions should be developed in a manner consistent with the municipal provider's conservation requirements in the management plan. This could be accomplished by some relatively simple and voluntary efforts by the certificate applicant or the homebuilder. A few examples are:

- Establish Conditions, Covenants and Restrictions or other conditions that will limit landscaping within the subdivision
- Provide lot buyers with written water conservation information, including irrigation management of automatic irrigation timers
- Landscape model homes in accordance with Xeriscape™ principles
- Feature water conservation fixtures and appliances in model homes
- Limit the water intensive landscaped area in common areas to those areas that provide significant recreational benefits
- Provide low water use landscaping packages to home buyers
- Locate hot water heaters to minimize long hot water pipe run or install looped systems

An application for a Certificate of AWS requires submittal of general information to allow the Department to estimate the water demand of the subdivision. These include submittal of any Conditions, Covenants and Restrictions or other conditions that will limit exterior water demand and any proposed conservation practices, policies, devices, etc. that may be utilized.

5.4.2.1 Consistency With Management Plan Criteria For Applicants For Certificates of Assured Water Supply

Some subdivisions include a golf course and other non-residential water uses. Demands associated with non-residential use are considered to be part of the subdivision offering if they will be part of the common promotional plan and they are covered by the official definition of a subdivision (A.R.S. § 32-2101). Because of the large volume of water associated with the needs of a golf course, a person applying for a Certificate of AWS must demonstrate the following:

That any new golf courses to be constructed within the subdivision will be designed to comply with any applicable turf-related facility conservation requirements contained in Chapter 6 of this management plan. To make this demonstration, the applicant shall describe in its application the design and landscaping plans for any golf courses that will be constructed within the subdivision.

When the AWS Rules are revised, more specific Consistency with Management Plan requirements for Certificates of AWS may be included.

5.4.3 Assured Water Supply Role in Municipal Conservation Program

As the utilization of renewable water supplies increases as a result of the AWS Rules, the municipal conservation program will continue to focus on the efficient use of all water supplies. As growth in the Pinal AMA continues, more emphasis will also be placed on the use of renewable supplies. It is the goal of the Department to use the AWS Rules in conjunction with the municipal conservation program and incentives for the use of renewable supplies to assist the AMA in meeting its management goal.

5.5 FIRST AND SECOND MANAGEMENT PLANS

For the First and Second Management Plans, the Department was required by statute to focus on per capita reductions as a component of achieving the AMA management goal. Reductions in GPCD rates result in conservation of the groundwater supply that can be preserved for times of drought or reserved for future growth. To achieve reductions in per capita water use, the Total GPCD Program was established as the base program for all large municipal providers.

The Department began with a very basic approach in the First Management Plan and moved to addressing unique water use characteristics in the Second Management Plan. Through each management period, the Department has addressed additional water management concerns including incentives for the use of renewable supplies, technical and financial assistance, and revising programs by updating data and assumptions using new information on current technologies and programs. In addition to the Total GPCD Program, voluntary alternative programs that are not solely based on per capita reductions, were developed in the Second Management Plan for providers able to limit or reduce reliance on groundwater supplies. The intent of these programs is to allow demand flexibility if groundwater use is limited to a historic amount or reduced over time.

5.5.1 First Management Plan Approach

The approach to municipal conservation in the First Management Plan was a reduction toward 140 GPCD for all municipal providers in the Pinal AMA. The 1980 U.S. Census population and total water use were used as the basis for calculating each provider's per capita use. A First Management Plan total GPCD requirement was then calculated that assumed reasonable reductions, ranging from 3 to 6 percent, from the 1980 per capita use rate. The higher the base year GPCD rate, the greater the water use decrease requirement. Providers at or under 140 GPCD in 1980 were not required to conserve further during the first management period but were not permitted to exceed 140 GPCD. Additional requirements for distribution systems, individual users, and monitoring and reporting requirements were also a component of the Municipal Conservation Program for the First Management Plan.

5.5.2 Second Management Plan Approach

During the development of the Second Management Plan, the Department recognized that unique characteristics and growth patterns within each service area would have a great influence on the ability to reduce per capita use. It was recognized that new users should be more efficient than existing users due to the installation of high efficiency plumbing fixtures in new residences, as called for by federal, state, and local ordinances.

The approach to setting GPCD requirements for large municipal providers in the Second Management Plan was based on an analysis of conservation potential for each service area using 1985 as the base year. Conservation potential for existing residential uses was estimated based on the comparison of existing water use patterns to assumed levels of savings associated with changing attitudes and implementation of selected conservation programs. Providers with relatively high GPCD rates were assumed to have greater conservation potential, while those whose residential GPCD fell under a certain level were assumed to have minimal or no conservation potential. Estimated savings assumptions, based on documented conservation programs successfully applied in Arizona, California, and other regions in the United States, were then applied to the existing residential GPCD rate for each large municipal provider to develop a GPCD requirement for existing residential uses. New residential water users were assumed to come in at model use rates established by the Department for new residential housing based on the latest commercially available technology such as low-flow plumbing fixtures and low water use landscaping practices. Non-residential uses were held constant from base year non-residential water use levels, with an

additional 7 percent reduction to be achieved by 2000. Lost and unaccounted for water was also held constant at base year levels but not to exceed a maximum of 10 percent.

Finally, a single total GPCD requirement was established for each large municipal provider combining the assumptions for existing residential, new residential, non-residential, and lost and unaccounted for water. Intermediate GPCD requirements were established for 1992 and 1995 to encourage providers to make progress in conservation efforts throughout the management period, with achievement of the final GPCD requirement in 2000.

Because non-residential uses continue to increase, and in most instances are not subject to assured water supply requirements limiting groundwater use, modifications to the total GPCD requirement for disproportionate increases in non-residential growth were not allowed in the Second Management Plan. Instead, the Department established the Alternative Conservation Program (ACP), which regulates providers based on a residential per capita requirement and the implementation of specific non-residential conservation measures. In order to participate in this more flexible program, providers were required to limit their groundwater withdrawals to a historic level, which required them to utilize renewable resources or retire groundwater rights to serve new demands. Additionally, providers that served predominantly non-residential/institutional uses were allowed to apply for the Institutional Provider Program (IPP), which replaced the special provider category established in the First Management Plan.

In the Second Management Plan, small municipal providers were not assigned a total GPCD requirement. Instead, because of their limited conservation potential and small proportion of overall municipal demand, small municipal providers were required to comply with the following requirements: minimize waste, maximize efficiency of outdoor watering, encourage reuse and reduce the GPCD usage in their service areas.

5.5.3 Overview of Changes During the Second Management Period

Since 1990, the Second Management Plan Municipal Conservation Program has been modified twice. In general, changes were made to provide incentives for use of non-groundwater sources, to provide conservation assistance to the regulated community, and to add the NPCCP. Additionally, a legislative change created an incentive for municipal providers to use groundwater withdrawn pursuant to approved remedial action projects.

5.5.3.1 Management Plan Modifications

5.5.3.1.1 First Modification (1991)

An exclusion for the use of untreated CAP water was included in the first modification. Providers that were willing to make a commitment to ultimately serve a non-residential customer with effluent, but did not yet have access to or the ability to distribute effluent immediately, were allowed to serve untreated CAP water to the customer without having that water counted in the total GPCD rate for up to ten years. This incentive was adopted to encourage construction of the necessary non-potable distribution lines before the effluent is available, to expedite the future use of effluent within AMAs.

The Conservation Assistance Program was adopted for the Second Management Plan to provide financial, planning, and technical support and services to all regulated water use sectors. Each year, grants are awarded to support education, projects, and research that promote water conservation. Funding to support the grants program comes from a portion of the groundwater withdrawal fees paid by all persons who pump groundwater in the AMA.

5.5.3.1.1.1 Second Modification (1995)

Legislation passed in 1994, and incorporated into the second modification, redefined small municipal providers as those water providers serving 250 acre-feet of water or less annually. Previously, a small municipal provider was defined as a water provider serving 100 acre-feet of water or less annually or a water provider that served a population of 500 people or less. The intent of this legislation was to allow the Department to focus its conservation efforts on providers with significant water use and greater conservation potential. In the Pinal AMA, passage of this legislation reduced the number of large providers from 13 to six.

The NPCCP, passed in 1992 by the Legislature, exempts qualified large municipal providers from per capita conservation requirements by substituting reasonable conservation measures (RCMs), targeting both residential and non-residential users, for the per capita requirements. A.R.S. § 45-565.01(A). Providers that elect to enter this program are required to gradually eliminate the use of mined groundwater in their service areas.

An incentive for the use of renewable supplies was also developed for large municipal providers. A provider whose annual groundwater use was 30 percent or less of the total service area water use was allowed to remain at the Second Management Plan first intermediate total GPCD requirement. This incentive can be used in each year that the provider achieves the groundwater limitation standard of 30 percent or less groundwater use, through 1999.

5.5.3.2 Legislative Change

In 1997, the Legislature passed Senate Bill 1452, requiring the Department to account for remediated groundwater withdrawn pursuant to an Environmental Protection Agency (EPA) or Arizona Department of Environmental Quality (ADEQ) “approved remedial action project” in the same manner as surface water for assured water supply and conservation compliance determinations, adopted in the third, fourth, and fifth management plans. Thus, a person who uses only this type of groundwater during a year will not be subject to management plan conservation requirements in that year. Laws 1997, Ch. 287, § 51(B). Although the 1997 legislation did not expressly apply to conservation requirements adopted in the Second Management Plan, an amendment passed in 1999 applies these accounting principles to the Second Management Plan. Laws 1999, Ch. 295, § 49. The Department has indicated through a substantive policy statement how it will apply the incentive to Second Management Plan conservation requirements beginning in 1998. Section 5-8 contains a discussion of this incentive as it applies to the Third Management Plan.

5.6 MUNICIPAL PROGRAM ISSUES

Throughout the preparation of the Third Management Plan, extensive feedback from the water-using community was obtained in order to define the issues to be addressed during the third management period. This section identifies the issues raised by both the Department and the municipal providers in these discussions.

5.6.1 Private Water Company Issues

Some municipal providers regulated under the municipal conservation program are privately-owned companies separate from the city, town, or county in which they are located. While local plumbing and landscape ordinances may apply within the private water company service area, the water company itself lacks the authority to enact ordinances regulating water use by its customers. In addition to being regulated by the Department, private water companies are regulated by the Arizona Corporation Commission (ACC), an elected body whose mission includes exercising exclusive state regulatory authority over public service

corporations (public utilities) in the public interest. The ACC monitors the operations of approximately 350 private water utility companies throughout Arizona, reviewing company financial records and recommending revenue requirements and rates and charges to be collected. The regulatory responsibilities of the ACC are fully defined in Article XV of the Arizona Constitution and §§ 40-201, *et seq.*, Arizona Revised Statutes, including A.R.S. § 40-250, requiring that all public service corporations obtain ACC approval before establishing or changing any rate.

Private water companies have raised several issues regarding the relationship of the Department's requirements and the ACC's review of rate recovery associated with the requirements. The most significant issues identified include: (1) the perception of uncertainty in the ability to recover the holding costs of CAP subcontracts and financing the construction of facilities for receipt and use of renewable supplies, and (2) the impact of the ACC's position in rate cases that implementation of conservation programs is discretionary, because the Department does not identify specific conservation programs or measures needed to be carried out by the provider.

These issues have been extensively reviewed and discussed by the Department staff, private water company representatives and ACC staff. The ACC has indicated that "although they cannot guarantee recovery of costs prior to their incurrence" they would consider cost recovery for the use of renewable supplies and the implementation of conservation measures, applying the principles of "used and useful" and "least-cost alternative." In the past, these principles have meant that a provider would have to be actively providing a resource in order to recover costs and any conservation measure implemented would have to be the most cost-effective option before the recovery of costs would be allowed. Private water companies argue that these principles do not guarantee cost recovery as they are considered by the ACC on a case-by-case basis.

During the development of the Third Management Plan, the Department explored the possibility of establishing a municipal conservation program designed exclusively for private water companies. In order to meet the goals of the Department and obtain the support of the ACC, the Department considered a program that would mandate specific conservation measures and reduce reliance on groundwater supplies. Upon further examination, it was determined that additional statutory authority would be needed to implement such a program. It was decided by the Department not to pursue this action at this time. However, Department staff, with the cooperation of the regulated community, will continue to explore options, including continued dialogue between the two agencies aimed at establishing a united strategy in achieving the most economically efficient reduction in reliance on mined groundwater by private water companies including providing more certainty of cost recovery for providers.

5.6.2 Renewable Water Supply Use

In the first and second management periods, the Department focused primarily on water conservation regulations. The AWS Rules have increased the emphasis on renewable supply requirements for municipal growth going into the third management period. The Department believes water use efficiency through conservation, increased use of renewable water supplies and effluent, limited restrictions on inappropriate uses of certain sources, and recharge are each critical to ensuring a secure water supply. A number of providers argue that these goals conflict or that they have insufficient resources to pursue both conservation and renewable supply acquisition and development simultaneously. Some have recommended that the use of renewable resources should be facilitated by exempting such deliveries from conservation requirements. However, the Department's long-term demand and supply projections indicate that the providers in the Pinal AMA will fully utilize their CAP and other renewable resources, justifying the continued attention on efficient use of all water supplies. The Department recognizes the importance of encouraging the use of renewable supplies while continuing to stress that all available water supplies must be used efficiently through effective conservation programs.

5.6.3 Total Gallons Per Capita Per Day Program Issues

After the Second Management Plan total GPCD requirements were assigned in 1990, the Department received numerous requests for administrative reviews, diminishing the ability to effectively administer the existing programs. Several issues were addressed including inaccurate population projections, seasonal population fluctuations, disproportionate increases in non-residential growth, and inaccurate assumptions for new residential growth (i.e., lot size and exterior landscape patterns).

Population projections were used in the Second Management Plan to calculate the total GPCD requirements for each large municipal provider. The use of such projections can be effected by: (1) economic forecasts, which can artificially increase or decrease the projections; (2) the ratio of single family to multifamily housing units in a service area; and (3) the actual growth patterns of the service area in relation to the projected growth.

The Department did not use projections to calculate total GPCD requirements for large municipal providers in the Third Management Plan. Instead, the Department will use a component method that is based on the actual new single family and multifamily housing units added to the service area.

The Department continues to support its position on disproportionate non-residential growth because of the availability of alternative programs that allow flexibility, with conditions, in this area. However, the use of alternative GPCD target calculations to recognize the issue of inaccurate population projections is one area that is addressed in the Third Management Plan with the institution of the component GPCD calculation. Additionally, staff has adjusted some of the assumptions used in the Second Management Plan water use model for new residential growth. Section 5.7 discusses these approaches in greater detail.

5.7 THIRD MANAGEMENT PLAN MUNICIPAL CONSERVATION PROGRAM

Conservation requirements have been established pursuant to the statutory provisions of the Code for large municipal providers, small municipal providers, and large untreated water providers. This section will detail the requirements that have been developed for the Third Management Plan.

5.7.1 Conservation Requirements for Large Municipal Providers

In order to establish conservation requirements for providers in the Second Management Plan, the Department identified existing water use patterns and service area characteristics that influenced a provider's water conservation potential. Assumptions about future service area population growth and water supply and demand were also included in the analysis. This assessment was referred to as the "municipal provider profile." For the Third Management Plan, the Department used a similar approach to identify service area water use characteristics. Information was gathered through annual water use reports including water deliveries and supplies, and the number of housing units that were added to the service area annually. Additional information included annual population estimates based on the provider supplied housing unit information from the annual reports, Arizona Department of Economic Security persons per housing unit data, and individual interviews conducted to determine existing water conservation programs were used to determine water conservation potential for each large municipal provider. This conservation potential was applied to existing GPCD figures, and a total GPCD reduction was assigned to each provider. The total reduction, to be achieved by 2000, was phased in with intermediate GPCD reductions called for in 1992 and 1995.

The Code requires additional reasonable reductions in per capita use by large municipal providers in the Third Management Plan. Pursuant to this statutory requirement, the Department will calculate a total GPCD requirement for each large municipal provider. However, the Department will not initially combine the water use components into a pre-assigned total GPCD requirement. Instead, in order to eliminate the

uncertainty of population projections, each component is assigned a separate water use rate, with a total GPCD requirement calculated each year based on actual population growth within the service area. As in the Second Management Plan, there will be two intermediates and a final GPCD requirement for all large municipal providers. Each large municipal provider will be noticed of the total GPCD requirements for its service area. Providers may apply for a variance from or administrative review of the conservation requirements within 90 days after the notice from the director is given. Alternatively, a large municipal provider may apply for one of the alternative programs: the NPCCP, the ACP, or the IPP. Large municipal providers that do not apply for an alternative program will be regulated under the Total GPCD Program. Additionally, requirements have been established for large untreated providers and small municipal providers. This section describes the Third Management Plan Municipal Conservation Program and how it was developed, the alternative programs, the large untreated provider program, and the conservation requirements for small municipal providers. For a legal description of the requirements for each of these programs, please refer to the municipal conservation requirements at the end of this chapter (see section 5.12).

5.7.1.1 Total Gallons Per Capita Day Program

As in previous management periods, the base municipal program for the Third Management Plan will be the Total GPCD Program. All large municipal providers are legally noticed of its total GPCD requirements under the management plan. These conservation requirements limit the annual gallons per capita per day water usage within each municipal provider's service area to the amount allowed under its total GPCD requirements.

5.7.1.1.1 Total Gallons Per Capita Day Program Development

For the third management period an annual total GPCD requirement will be calculated using a "component method." The components of the total GPCD requirement include: existing residential use, new single family residential use, new multifamily residential use, non-residential use, and lost and unaccounted for water. Each component has an assigned per capita per day or per housing unit per day target use rate based on factors including: an assessment of the conservation potential of existing residential users, model use demands in new housing units based in part on plumbing code requirements and efficient exterior water use practices, a constant non-residential GPCD rate, and system losses and unmetered uses in each year up to a limit of 10 percent. The component calculation is described in more detail and illustrated in Appendices 5B.1 and 5B.2. The sum of the component volumes will be multiplied by the actual population or housing units in the service area each year. The resulting allowable volume will be compared to the actual amount of water withdrawn, diverted, or received in the calendar year to determine compliance.

5.7.1.1.1.1 Analysis of Existing Residential Conservation Potential

Conservation potential, based on existing water use, is an estimate of the amount of reduction in water use that can be achieved from implementing reasonable conservation measures or programs for each water provider. To determine the residential conservation potential of each large provider in the Second Management Plan, the Department established a base year in determining water use rates for existing water users and then applied appropriate conservation measures to achieve a GPCD reduction for existing users that was factored into the Total GPCD requirement for each provider.

During the development of the Third Management Plan, the Department used the average water use characteristics between 1992 and 1995 to determine conservation potential for existing water use for each provider. Water use by the large municipal providers was disaggregated into residential, non-residential, and lost and unaccounted for water use. The average water use of existing residential water users, both single and multifamily, was then identified (see Appendix 5C). Additionally, the Department analyzed the

existence of conservation programs within each service area and conservation measures that could be implemented during the third management period. Four categories were used to express existing residential conservation potential for both interior and exterior use: none, minimum, moderate, and maximum. Table 5-1 illustrates the single family and multifamily interior GPCD, the single family exterior gallons per housing unit per day (GPHUD), and the multifamily exterior GPHUD used to determine a provider's conservation category. After a provider's conservation potential was determined (see Appendix 5E.1), a flat reduction of 3, 5, or 7 percent was applied to each conservation potential category respectively. The reduction assigned to each provider assumes the potential water savings for implementation of conservation measures commensurate with the provider's conservation potential. Finally, the water savings subtracted from the existing residential GPCD for each provider resulted in the existing residential component (see Appendix 5E.1).

**TABLE 5-1
EXISTING RESIDENTIAL CONSERVATION POTENTIAL
THIRD MANAGEMENT PLAN
PINAL ACTIVE MANAGEMENT AREA**

Potential	Interior SF/MF GPCD	Exterior SF GPHUD	Exterior MF GPHUD
None	0 - 57	0 - 149	77
Minimum	58 - 74	150 - 223	77
Moderate	75 - 87	224 - 297	77
Maximum	>87	>297	77

SF = single family

MF = multifamily

5.7.1.1.1.2 Models for New Residential Users

For new residential water users, those residential users who begin to receive water from a municipal provider after 2000, the Department utilized a similar model-based approach to that used in the Second Management Plan. Staff conducted an analysis of all assumptions used to generate the models for new residential interior and exterior water use. Current water fixture flow rates, existing technology, and behavioral patterns were evaluated and incorporated into the updated models for interior and exterior water use.

INTERIOR RESIDENTIAL WATER USE MODEL The interior water use model for new residential development was updated to include compliance with the federal plumbing act, use of water-efficient appliances, and water conserving practices. Behavioral patterns affecting the duration and frequency of water use were reevaluated and adjusted based on data obtained from residential flow trace analyses conducted in the Phoenix area and other areas of the United States and sponsored by the American Water Works Association Research Foundation. As a result, an interior residential model use rate of 57 GPCD will be used as the new residential interior component for all new residential water users through the third management period (see Table 5-2).

EXTERIOR RESIDENTIAL WATER USE MODEL The model developed in the second management period for exterior use in new single family developments considered average swimming pool demand, evaporative cooling demand and efficient landscaping needs. The same approach, using updated information, will be used in the Third Management Plan. Because exterior use is not dependent on the number of persons in the household, the model is expressed in GPHUD. The landscaping water use

assumptions used in the model are based on the landscaping trends and evapotranspiration rates in the Pinal AMA (see Table 5-3). The combined low water use model for exterior residential use in new single family housing is 149 GPHUD. Details on the assumptions used in developing the exterior water use model are contained in Appendix 5D.

5.7.1.1.1.3 Analysis of Non-Residential Water Use

Non-residential water use for the past eleven years was evaluated and compared to the Second Management Plan requirements. In general, non-residential water use has increased in the Pinal AMA 28 percent since 1985, with two of the four of the large providers demonstrating a disproportionate increase in non-residential use. The exclusions of effluent, either delivered directly or stored underground and recovered from the area of impact, from the total GPCD requirement will continue through the third management period. In the Third Management Plan, the Department will continue to regulate turf-related facilities, large-scale cooling facilities, and public rights-of-way as individual users having the greatest conservation potential in this sector. Large municipal providers that experience disproportionate growth in their non-residential water use have the option to enter one of the alternative conservation programs, the ACP or the NPCCP, neither of which imposes per capita requirements on the non-residential sector. Because the option of entering these alternative programs exists, each provider's non-residential GPCD component in the Third Management Plan will remain the same as their baseline non-residential component.

**TABLE 5-2
INTERIOR WATER USE MODEL, NEW RESIDENTIAL DEVELOPMENT
SINGLE AND MULTIFAMILY
PINAL ACTIVE MANAGEMENT AREA**

Device	Model Assumptions	Model Use Rate
Toilet	5 flushes/person/day x 1.7 gallons/flush	9 GPCD
Shower	7.9 minutes/shower x 2.50 gpm x 0.9 shower/person/day	18 GPCD
Bath	32.5 gallons/bath x 0.10 bath/person/day	3 GPCD
Faucets	Kitchen & Bathroom 2.5 gpm x 4.0 minutes/person/day	10 GPCD
Dishwasher	9.81 gallons/load x 0.20 loads/person/day	2 GPCD
Clothes Washer	30.3 gallons/load x 0.30 loads/person/day	9 GPCD
Miscellaneous		6 GPCD
TOTAL		57 GPCD

TABLE 5-3
EXTERIOR WATER USE MODEL, NEW RESIDENTIAL DEVELOPMENT
SINGLE FAMILY
PINAL ACTIVE MANAGEMENT AREA

Pool Use	13 GPHUD
Evaporative Cooling	5 GPHUD
Landscape Watering	131 GPHUD
TOTAL	149 GPHUD

5.7.1.1.1.4 Lost and Unaccounted for Water

In the Third Management Plan, large municipal providers must limit the amount of lost and unaccounted for water in their distribution systems during a year to no more than 10 percent of the total water withdrawn, diverted, or received in the year (see section 5.7.6.2). In the Second Management Plan, requirements were set assuming historical lost and unaccounted for water use rates held constant from the base year through the management period up to the limit of 10 percent. By doing so, providers with less than 10 percent lost and unaccounted for water in the base year were held to a figure below the standard throughout the second management period. Because the regulatory standard is 10 percent, providers will be allowed for the third management period their actual lost and unaccounted for water up to the 10 percent limit each year when calculating the annual total GPCD requirement and will not be held to the lower historic rates.

5.7.1.1.2 Total Gallons Per Capita Day Compliance

5.7.1.1.2.1 Compliance Calculation

Compliance with the Total GPCD Program will be determined by annually comparing a large municipal provider's total annual use (in gallons) of all water withdrawn, received, and diverted for non-irrigation uses (except CAP exclusion water, direct use effluent, and effluent recovered inside the area of impact) to the volume of water permitted by summing the components. The amount of water permitted is the amount of water that the provider could legally withdraw, divert, or receive during the year for non-irrigation use. This amount of water is calculated by multiplying the provider's total GPCD requirement for the year, as calculated using the component methodology, by the provider's service area population as of July 1 of the year, and then multiplying the product by the number of days in the year. The difference between the provider's actual use volume and the component volumes will thus be used to determine compliance. As discussed below, any credits or debits to the provider's flexibility account will be considered for compliance purposes.

5.7.1.1.2.2 Flexibility Account

To account for variations in weather, the Department established a flexibility account in the Second Management Plan to determine compliance with total GPCD requirements. The flexibility account allows providers regulated in the Total GPCD Program to accumulate 45 GPCD of credit or up to 15 GPCD of debit. This same approach will be used for determining compliance with the total GPCD requirements for third management period. Under this approach, if the provider uses less water in a year than allowed by its total GPCD requirement, a credit is registered to the provider flexibility account in the amount of the difference, up to the maximum permissible amount of 45 GPCD. Alternatively, if a provider uses more water during a year than is allowed by its total GPCD requirement, a debit is registered to the flexibility

account. The provider is out of compliance with its total GPCD requirement for the year if a debit causes the flexibility account to exceed the maximum allowable negative account balance of 15 GPCD.

5.7.1.1.2.3 Annual Population Estimates

On an annual basis, the Department requests updated service area boundaries from each large municipal provider delineating the areas within the service area that contain distribution lines, treatment facilities, and wells. These boundaries are updated and compared to the census tracts or enumeration districts determined by the U.S. Census Bureau. Annual service area population is based on the latest U.S. Census, which is broken down or disaggregated by unit type to determine the base housing unit counts for each service area. Each year, the provider reports the number of housing units added to the service area to the Department as part of the provider's Annual Water Withdrawal and Use Report. The reported new units are added to the total housing units determined to exist within the service area pursuant to the latest census, to derive the new total housing unit figure for the service area for the year. Occupancy rates and persons per occupied housing unit rates are then calculated and used to determine the estimated service area population for the provider.

5.7.1.2 Non-Per Capita Conservation Program

The NPCCP was added to the Second Management Plan in 1995 after being developed in cooperation with representatives of the water using community. This program requires a provider to implement specific conservation measures within its service area instead requiring compliance with per-capita conservation requirements. A provider in this program must implement RCMs for interior and exterior residential water uses and interior and exterior non-residential uses, as well as an education program. The RCMs must be designed to result in water use efficiency within the provider's service area equivalent to the water use efficiency assumed in the provider's total GPCD requirement. The Department has established a list of standard RCMs that are designed to achieve an efficiency equivalent to the assumptions used in the Total GPCD Program. However, if the standard RCMs do not fit the service area characteristics of a provider, the program allows the provider the flexibility to substitute measures that are designed to achieve the same savings yet fit the unique characteristics of the provider's service area. For the third management period, the Department will establish a steering committee to assist the Department in reviewing the existing RCMs outlined below, the substitute RCMs contained in Appendix 5F.4, and development of monitoring and reporting requirements that would benefit the administration of alternative programs (the NPCCP and the ACP). This steering committee will be made up primarily of Department staff and large municipal providers that are regulated under an alternative program. Other persons whom the director considers beneficial may also be included.

5.7.1.2.1 Groundwater Use Reduction Requirement

The provider must meet one of the following requirements to be eligible to participate in the NPCCP: (1) the provider must be a member of a groundwater replenishment district, (2) the provider must be designated as having a 100-year assured water supply under the Department's AWS Rules, or (3) the provider must implement a plan to eliminate mined groundwater withdrawals by the year 2010 using a volumetric reduction defined in A.R.S. § 45-566.01(3)(A).

5.7.1.2.2 Reasonable Conservation Measures

A set of standard residential, non-residential, and education RCMs were developed for the NPCCP. Each RCM prescribes actions that must be taken by the provider to achieve water use efficiencies in each sector. Providers that have already implemented these measures will be required to implement additional conservation measures, consistent with the conservation potential for their service area, to qualify for the program. Additional substitute RCMs were developed for providers to allow for additional flexibility to

develop a conservation program for the provider that meets the characteristics of each service area. In order for a provider to use a substitute RCM in place of a standard RCM, the provider must apply to the director and demonstrate that the substitute RCM will be designed to achieve a water use efficiency equivalent to the standard RCM. An outline of the standard RCMs is listed below. For a detailed description of each RCM, including the substitute RCMs, refer to Appendix 5F.1-F.4.

A. Residential Interior

1. Water Audit and Fixture Retrofit Program for Existing Residential Customers
2. Ordinance or Condition of New Service Prohibiting Installation or Replacement of Plumbing Fixtures in Residential Housing Units Unless Fixtures Meet Water Savings Standards

B. Residential Exterior

1. Audit Program for Existing Residential Customers
2. Landscape Watering Advice Program for Existing and New Residential Customers
3. Ordinance or Condition of New Service for Model Homes in New Residential Developments
4. Prohibit the Creation of Covenants, Conditions, and Restrictions Which Require the Use of Water-Intensive Landscaping or Which Prohibit the Use of Low Water Use Landscaping in New Residential Developments
5. One additional landscape RCM from the three below (**Choice of one of the following**)
 - a) Ordinance or Condition of New Service Limiting the Use of Turf and Other Water-Intensive Landscaping in New Multifamily Developments; **or**
 - b) Ordinance or Condition of New Service Limiting the Use of Turf and Other Water-Intensive Landscaping in Common Areas of New Single Family and Multifamily Developments; **or**
 - c) Rebate Program for New Residential Customers

C. Non-Residential Interior

1. Interior Audit Program for Existing Facilities
2. Ordinance or Condition of New Service Prohibiting Installation or Replacement of Plumbing Fixtures in Non-Residential Facilities Unless Fixtures Meet Water Saving Standards
3. Distribution of Conservation Information to all New Non-Residential Customers and Submittal of Water Use Plan by New Large Facilities

D. Non-Residential Exterior

1. Exterior Audit Program for Existing Non-Residential Customers
2. Landscape Ordinance or Condition of New Service for New Facilities

E. Education

1. Public Information and Education Program

5.7.1.2.3 Compliance with the Non-Per Capita Conservation Program

A large municipal provider regulated under the NPCCP is in compliance with the program if it implements the agreed to RCMs and limits its use of groundwater to the amount allowed under the AWS Rules or the amount allowed by the groundwater reduction requirement, whichever is applicable. The Department will use the written agreement for the NPCCP to monitor progress with the program. Each year, along with the Annual Water Withdrawal and Use Report, the municipal provider will be required to submit a progress report describing the implementation of each RCM, the cost of implementing the program, estimated or actual water savings, and a description of any difficulties with the program. Providers regulated under the

NPCCP will also be required to comply with the individual user, distribution system, and monitoring and reporting requirements contained in this chapter.

5.7.1.3 Alternative Conservation Program

The ACP was developed for the Second Management Plan to give large municipal providers with disproportionately increasing non-residential water use an alternative to the Total GPCD Program. The ACP allows providers experiencing disproportionate increases in non-residential water use the flexibility to remain in compliance while achieving water use efficiency levels comparable to those set by the Total GPCD Program. The ACP consists of the following requirements that must be met by the provider: (1) a groundwater use limitation requirement, (2) a residential GPCD requirement, and (3) non-residential requirements.

5.7.1.3.1 Groundwater Use Limitation Requirement

A provider regulated under the ACP must limit its annual groundwater use as follows: (1) If the provider is designated as having an assured water supply, it must limit its annual groundwater use to the amount it can use consistent with the AWS Rules; (2) If the provider is not designated as having an assured water supply, it must limit its annual groundwater use to its largest legal groundwater use during any one year from 1980 through 1989, if it was serving water on or before January 1, 1990, or to 50 percent of the largest legal groundwater use during any one year from January 1, 1990 through 1999, if it began serving water after January 1, 1990 but before January 1, 2000. A provider can achieve compliance with the groundwater use limitation requirement by permanently extinguishing grandfathered rights within the AMA, or by serving groundwater that will be replenished by a replenishment district, remediated groundwater that is accounted for as surface water under section 5-115 of the municipal conservation requirements, groundwater withdrawn outside of an AMA, or renewable supplies.

5.7.1.3.2 Residential Gallons Per Capita Day Requirement

Each provider regulated under the ACP is required to comply with a residential GPCD requirement that is calculated using separate GPCD and GPHUD rates for existing residential, new single family, and new multifamily water users. The rates were derived using the same methodology used to calculate the residential portion of the total GPCD requirement. The GPCD rates for these categories are recalculated annually based on growth within the service area, similarly to the calculation used for the residential portion of the Total GPCD Program (see Appendix 5H).

5.7.1.3.3 Non-Residential Requirements

Providers regulated under the ACP must implement specific conservation measures for new non-residential water users. Providers that have already implemented these measures will be required to implement additional measures to qualify for the program. The standard non-residential requirements for the Third Management Plan have been modified to be identical to the standard non-residential RCMs for the NPCCP. These requirements are as follows:

A. Non-Residential Interior

1. Interior Audit Program for Existing Facilities
2. Ordinance or Condition of New Service Prohibiting Installation or Replacement of Plumbing Fixtures in Non-Residential Facilities Unless Fixtures Meet Water Savings Standards
3. Distribution of Conservation Information to all New Non-Residential Customers and Submittal of Water Use Plan by New Large Facilities

B. Non-Residential Exterior

1. Exterior Audit Program for Existing Non-Residential Customers
2. Landscape Ordinance or Condition of New Service for New Facilities

Providers also have the added flexibility of requesting a substitute measure for the non-residential requirements, which must be approved by the director.

5.7.1.3.4 Compliance with the Alternative Conservation Program

A provider regulated under the ACP is in compliance with the program if it does not exceed its residential GPCD requirement, implements the agreed to non-residential RCMs, and limits its groundwater use to the amount allowed under the AWS Rules, or the amount allowed under the historic limitation, whichever is applicable. The Department will use the written agreement for the ACP to monitor progress with the program. Each year, along with the Annual Water Withdrawal and Use Report, the municipal provider will be required to submit a progress report describing the implementation of each non-residential RCM, the cost of implementing the program, estimated or actual water savings, and a description of any difficulties with the program. Providers regulated under the ACP will also be required to comply with the individual user, distribution system, and monitoring and reporting requirements contained in this chapter.

5.7.1.3.4.1 Groundwater Use Limitation Requirement

A provider regulated under the ACP is in compliance with the groundwater use limitation requirement of the ACP if no more groundwater is used in the calendar year than is allowed pursuant to the provisions of the program.

5.7.1.3.4.2 Residential Gallons Per Capita Day Requirement

Compliance with the residential GPCD requirement will be determined in a manner similar to the manner in which compliance with the total GPCD requirement is determined. A flexibility account will be established for the provider at the time the provider enters the ACP. The maximum positive balance allowed in the account at any time is 30 GPCD, and the maximum negative balance allowed in the account at any time is 10 GPCD.

Following each year in which the provider is regulated under the ACP, the total amount of water that the provider is allocated for residential use during the year will be calculated by multiplying the provider's residential GPCD requirement for the year by the provider's service area population for the year, and then multiplying that product by the number of days in the year. That amount will then be compared to the total amount of water from any source, except direct use effluent or effluent recovered within the area of impact, delivered by the provider for residential use during the year. If the allocated amount is greater than the amount delivered for residential use during the year, the difference is credited to provider's flexibility account, subject to the maximum positive account balance. If the allocated amount is less than the amount delivered for residential use during the year, the difference is debited to the provider's flexibility account. The provider is out of compliance with its residential GPCD requirement for the year if the debit causes the flexibility account to exceed the maximum negative account balance.

5.7.1.3.4.3 Non-Residential Requirements

A provider regulated under the ACP is in compliance with its non-residential requirements if it implements the agreed to non-residential RCMs (standard non-residential RCMs or any substitute RCMs approved by the director).

5.7.1.4 Institutional Provider Program

For the Second Management Plan, the IPP replaced the special provider category of the First Management Plan. This program will be continued in the Third Management Plan. The IPP allows those providers that have primarily non-residential uses and are unable to economically utilize non-groundwater sources a way to be regulated under a program that focuses on the specific water use characteristics of the service area. The IPP is designed for municipal providers that supply more than 90 percent of their total water deliveries to non-residential water users. Specifically, these non-residential uses include prisons, hospitals, military installations, airparks and schools. A large municipal provider may submit a written request to the director for entrance into this program at any time during the third management period. If the request is approved, the provider is assigned specific conservation measures for non-residential uses, a maximum residential GPCD rate, and will also be required to comply with the individual user, distribution system, and monitoring and reporting requirements. The Department will grant institutional provider designation only if the Total GPCD Program is not appropriate and the provider demonstrates that it cannot qualify for the ACP or NPCCP by limiting its groundwater use, extinguishing grandfathered rights, or using renewable sources of water.

5.7.2 Conservation Requirements for Large Untreated Water Providers

A large untreated water provider must limit its deliveries of untreated water during a year to an amount calculated by multiplying the number of gross acres of land to which it serves untreated water by an average application rate of 4 acre-feet per acre. A gross acre is the entire acre, including associated structures, but not including any acres regulated as a turf-related facility. A large untreated water provider must also meet the individual user requirements, distribution system requirements, and the monitoring and reporting requirements.

5.7.3 Conservation Requirements for New Large Municipal Providers

A new large provider is defined as a city, town, private water company, or irrigation district that begins serving more than 250 acre-feet of non-irrigation water per year after January 1, 2000. All new large municipal providers will initially be assigned to the Total GPCD Program. Their total GPCD requirement will be calculated consistent with the component methodology used for existing large municipal providers. The Department will determine the base year for the new large municipal provider as the year preceding the year in which the provider began serving greater than 250 acre-feet per year, unless the director determines that water usage during that year is not representative of historic water use. Additionally, the Department will collect residential and non-residential water use data during the base year and the total gallons of water withdrawn, diverted, or received by the provider in the service area. Using an analysis of conservation potential for existing residential users, the Department will calculate a GPCD requirement for existing residential users. New residential development will be assigned the interior residential model use rates of 57 GPCD for new single family and multifamily water users and the exterior water use model of 149 GPHUD for new single family and 77 GPHUD for new multifamily exterior water use. The actual annual amount of non-residential water use will be included in the GPCD requirement, up to 20 GPCD. The annual amount of lost and unaccounted for water will be included in the component calculation up to 10 percent of the total water use in that year.

Each new large municipal provider will be notified of its total GPCD requirement and will also be given two full years to comply with the requirement. A new large municipal provider may apply for the NPCCP or the ACP, in accordance with the provisions of these programs, and is also subject to the individual user, distribution system, and monitoring and reporting requirements contained in this chapter.

A new large provider may apply for an administrative review requesting a temporary adjustment to its total GPCD requirement in order to serve a turf-related facility. A temporary adjustment will be allowed if the

provider demonstrates that direct use effluent or effluent recovered within the area of impact is committed to serve the turf-related facility beginning in four years, but a longer period is necessary for sufficient effluent to be produced to serve the entire facility. The adjustment will remain in effect only until sufficient direct use effluent or effluent recovered within the area of impact is available to serve the entire facility, not to exceed eight years, and may be adjusted as the volume of effluent use increases. The adjustment will be terminated if the infrastructure necessary to deliver the effluent is not in place at the beginning of the fourth year after the provider commences service to the facility. A permanent adjustment will not be granted to a new large municipal provider. If a new large municipal provider cannot serve a turf-related facility under its existing per capita requirement and direct use effluent or effluent recovered within the area of impact will not be physically available to serve the facility within a reasonable period of time, the provider may enroll in the Non-Per Capita Conservation Program or the Alternative Conservation Program, if it wishes to serve the facility.

5.7.4 Conservation Requirements for Consolidated Municipal Providers and Providers that Acquire or Convey a Portion of a Service Area

If two or more municipal providers consolidate their service areas or if a large municipal provider acquires a portion of another provider's service area, the consolidated provider, acquiring provider, or conveying provider will receive a recalculated or revised conservation requirement. A consolidated provider that qualifies as a large municipal provider will be assigned to the Total GPCD Program and its GPCD components will be calculated by prorating the respective per capita component targets, populations and water use as appropriate. A consolidated provider may apply for the NPCCP or the ACP. If one of the consolidated providers was regulated under one of these programs prior to the consolidation, the consolidated provider's application for the program must include only the information that has changed since the time that the provider originally filed the application for the program. Providers that acquire or convey a portion of a service area will continue to be regulated under the conservation program that they were under prior to the acquisition or conveyance. However, if they were regulated under either the NPCCP or the ACP, they must reapply for regulation under that program within 180 days after the acquisition or conveyance and must submit only the information that has changed since the original application was filed.

5.7.5 Conservation Requirements for Small Municipal Providers

During the third management period small municipal providers will be required to minimize waste of all water supplies, maximize efficiency in outdoor watering, encourage reuse of water supplies and reduce total gallons per capita per day usage.

5.7.6 Regulatory Requirements for All Municipal Providers

The following requirements have been established for all municipal providers: individual user requirements, distribution system requirements, and monitoring and reporting requirements. Each of these requirements is described in this section.

5.7.6.1 Individual User Requirements

An individual user is a person who receives water from a municipal provider for a non-irrigation use. For the Third Management Plan, the director is required to establish "such other conservation measures as may be appropriate for individual users." A.R.S. § 45-566 (A)(2). In the Second Management Plan, individual user requirements were established for turf-related facilities, publicly owned rights-of-way, and large cooling towers. These requirements have been retained for the Third Management Plan with some modifications.

Turf-related facilities are subject to an allotment-based conservation requirement. Landscaping planted after December 31, 1986 in publicly owned rights-of-way and watered with groundwater may be planted only with plants on the Drought Tolerant/Low Water Use Plant List (Appendix 5I), or any modifications to the list. The cooling tower requirements have been modified from those of the Second Management Plan, which applied only to towers built after January 1, 1990 with a total capacity exceeding 250 tons. The Third Management Plan regulates new and existing large-scale cooling facilities with a total capacity of 1,000 tons or more.

In addition to these individual user requirements, the Third Management Plan contains an individual user requirement that was not included in the Second Management Plan. This additional requirement prohibits the use of groundwater to maintain a water feature installed in a publicly owned right-of-way after January 1, 2002.

Either the individual user or the municipal provider serving the individual user is responsible for complying with the individual user requirement. See section 5-112 of the municipal conservation requirements for determining responsibility for compliance with the individual user requirements.

5.7.6.2 Distribution System Requirements

Lost and unaccounted for water is defined as the total water from any source, except direct use effluent, withdrawn, diverted, or received in a year minus the total amount of authorized deliveries made by the municipal provider in that year. Lost and unaccounted for water includes line leakage, meter under-registration, evaporation or leakage from storage ponds or tanks, system and hydrant leaks or breaks, and illegal connections.

All municipal providers are required to meet efficient lost and unaccounted for water standards in their service areas. Lost and unaccounted for water will be determined for each municipal provider based on the quantity of metered and unmetered water deliveries, except direct use effluent, and the total water pumped, received, or diverted by the municipal provider, except direct use effluent, for each calendar year. Small municipal providers must maintain lost and unaccounted for water at or below 15 percent. Large municipal providers are required to maintain their system in such a manner as to not exceed 10 percent lost and unaccounted for water. Large untreated water providers are required to either line all canals used to deliver water to the provider's delivery points with a material that allows no more lost water than a well-maintained concrete lining or operate and maintain its distribution system to reduce lost and unaccounted for water at or below 10 percent.

For the third management period, the Department will allow providers to exclude from the lost and unaccounted for water calculation water, metered or estimated using approved estimating procedures, used pursuant to other regulatory requirements, such as well purging and line flushing. Providers may also exclude estimated water uses, such as construction (truck loads for dust control) or fire services, but all other uses of water within a distribution system must be metered. Appendix 5J provides a complete list of uses that are considered in the lost and unaccounted for calculation and those that can be estimated to determine the volume.

5.7.6.3 Monitoring and Reporting Requirements

All municipal providers are required to annually: (1) report to the Department information on the total quantity of water used within the service area and the total volume of water delivered for various municipal purposes, (2) calculate the volume of lost and unaccounted for water within the service area, and (3) report the total number of housing units, by unit type, added to the service area from July 1 of the previous calendar year to July 1 of the reporting year.

Large municipal providers are required to separately measure and report the amount of water delivered each month for: irrigation uses; residential uses, separated by single family and multifamily; and non-residential uses, separated by water use categories, including turf-related facility use, commercial use, industrial use, government use, construction use, surface water treatment, and other uses.

All municipal providers are required to submit to the Department, on an annual basis, an updated service area and distribution system map delineating all potable and non-potable distribution lines greater than 4 inches, all potable treatment facilities, all well sites, and all non-potable treatment.

Large municipal providers regulated under the NPCCP or the ACP are required to submit a progress report that includes an evaluation of the reasonable conservation measures in accordance with their written stipulated agreement.

5.8 INCENTIVES FOR THE USE OF RENEWABLE SUPPLIES AND POOR QUALITY GROUNDWATER

Incentives have been developed to increase the use of non-groundwater supplies. For instance, effluent, directly used or stored underground and recovered from within the area of hydrologic impact is not counted in the annual per capita rate use rate for municipal providers regulated under the Total GPCD Program or the ACP.

Providers that have committed to serve effluent but have not yet fully developed the resource can enter into an agreement with the Department to exclude CAP deliveries to non-residential facilities that have committed to use effluent when it becomes available from total GPCD usage rate. In order to qualify for this exclusion, the facility must commit to be fully utilizing the effluent within a ten-year period.

In 1997, the Legislature enacted legislation significantly revising the Water Quality Assurance Revolving Fund (WQARF) program to provide incentives for the use of remediated groundwater to facilitate the treatment of contaminated groundwater. Among other things, the WQARF legislation provides that when determining compliance with management plan conservation requirements, the Department shall account for groundwater withdrawn pursuant to approved remedial action projects under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Title 49, Arizona Revised Statutes, consistent with the accounting for surface water. Laws 1997, Ch. 287, § 51(B). See Chapter 7, section 7.4.4.6.3. Groundwater withdrawn pursuant to an approved remedial action project retains its legal character as groundwater for all other purposes under Title 45, Arizona Revised Statutes, including all other laws regulating groundwater withdrawal and use such as the assessment of withdrawal fees pursuant to A.R.S. § 45-611, *et seq.*, as well as laws regulating water exchanges as set forth in A.R.S. § 45-1001, *et seq.*, the transportation of groundwater as set forth in A.R.S. § 45-541, *et seq.*, withdrawals of groundwater for transportation to active management areas as set forth in A.R.S. § 45-551, *et seq.*, and underground water storage, savings, and replenishment as set forth in Title 45, Chapter 3.1, Arizona Revised Statutes.

For each approved remedial action project, the annual amount of groundwater that is eligible for the remediated groundwater accounting incentive is the maximum annual volume of groundwater that may be withdrawn pursuant to the project, as specified in the consent decree or other document approved by the EPA or ADEQ. However, if the project was approved prior to June 15, 1999 and the maximum annual volume of groundwater that may be withdrawn pursuant to the project is not specified in a consent decree or other document approved by the EPA or ADEQ, the annual amount of groundwater that is eligible for the remediated groundwater accounting incentive is the highest annual use of groundwater withdrawn pursuant to the project prior to January 1, 1999. The director may modify the annual amount of groundwater that is eligible for the accounting incentive if an increase in withdrawals is necessary to further the purpose of the project or if a change is made to the consent decree or other document approved by the EPA or ADEQ.

In order to qualify for the remediated groundwater accounting incentive, a person must notify the director in writing of the anticipated withdrawal of the groundwater prior to its withdrawal. The notification must include a copy of a document approved by ADEQ or the EPA such as the Remedial Action Plan (RAP), Record of Decision (ROD) or consent decree. Unless specified in the document, the notification must include the volume of groundwater that will be pumped annually pursuant to the project, the time period to which the document applies, and the annual authorized volume of groundwater that may be withdrawn pursuant to the project. The notification must also include the purpose for which the remediated groundwater will be used and the name and telephone number of a contact person. Additionally, at the time the notice is given, the person must be using remediated groundwater pursuant to the approved remedial action or must have agreed to do so through a consent decree or other document approved by ADEQ or the EPA. Remediated groundwater which qualifies for the accounting must be metered and reported separately from groundwater that does not qualify for the accounting. (See section 5-115 of the municipal conservation requirements.)

5.9 NON-REGULATORY EFFORTS

In 1991, the Department initiated a grants program for conservation assistance to water users in each of the AMAs. Funding for the grants program comes from an annual withdrawal fee levied and collected from all regulated groundwater users in the AMAs. Since the grants program began seven years ago, the Department has funded 27 conservation assistance grants totaling nearly \$700,000, in the AMA. During the third management period, the Department intends to continue to fund grants in the AMA that inform and educate water users and the public about water conservation and water resources issues.

The Department's Hydrology Division developed the Pinal AMA Groundwater Model to study groundwater levels and movement in the AMA. With the assistance of AMA staff, different scenarios demonstrating urbanization patterns, development strategies, and supply utilization were developed to assess future conditions.

For the development of the Third Management Plan, Pinal AMA staff formed the Municipal Work Group to aid in evaluating the Second Management Plan conservation requirements and assist in the development of regulations for the third management period. AMA staff will continue to meet with this group to evaluate the Third Management Plan on an ongoing basis and as a clearinghouse for new conservation technologies and data assistance.

5.10 SUMMARY AND CONCLUSIONS

The Municipal Conservation Program for the Third Management Plan is similar to that of the Second Management Plan, consisting of the Total GPCD Program, the ACP, and the NPCCP for large municipal providers serving water for domestic uses.

The Total GPCD Program has been amended to allow for annual recalculation of the total GPCD components, with conservation reductions ranging from zero to 7 percent applied to residential GPCD rates. Non-residential GPCD rates will be capped at baseline levels for each provider, while lost and unaccounted for water cannot exceed 10 percent. A flexibility account allows a provider to accumulate credits during years in which their water use rate is below the maximum allowable level, and to use existing credits during a year in which they exceed their allowable use level. This enables a provider to remain in compliance during years of abnormal weather conditions or unusual water use.

The ACP, like the Total GPCD Program, calls for reductions in the residential GPCD rate, includes a flexibility account, but does not hold providers regulated under this program to non-residential use requirements. Instead providers must implement a series of RCMs. Groundwater use is capped at the highest legal annual use level of use between 1980 and 1989 for providers serving water on or before

January 1, 1990. Providers that began serving water after January 1, 1990 but before January 1, 2000 are limited to 50 percent of highest legal annual use rate during the period from January 1, 1990 through 1999. The ACP allows providers with a growing non-residential use component an alternative to the Total GPCD Program that will allow them to remain in compliance, and the use of a groundwater cap is consistent with the Department's philosophy of encouraging the use of renewable supplies.

The NPCCP also affords municipal providers an alternative to the Total GPCD Program. The NPCCP is not based on GPCD requirements, but instead utilizes specific RCMs that are designed to achieve water conservation savings equivalent to those of the Total GPCD Program. The NPCCP requires that providers either gradually reduce their groundwater use, using no groundwater by 2010, or obtain a Designation of AWS.

Other programs, including the Large Untreated Provider Program, the IPP, and the Small Provider Program, are also included in the Third Management Plan. These programs are substantially unchanged from their Second Management Plan formats.

5.11 FUTURE DIRECTIONS

Throughout the third management period, data collection will improve and additional analyses of municipal growth patterns will be performed. The Department will continue to collect information regarding the best available technologies for residential and non-residential water use. The Department will attempt to quantify a reasonable goal for future reductions in municipal water use.

The Department will continue to explore the possibility of developing a separate private water company program during the third management period. Through discussions with the ACC, the Department will work in the development of ACC policies related to water conservation and supply acquisition, and attempt to foster an understanding with the ACC regarding the ability of private water companies to develop alternatives and be given more assurances about passing through to customers those costs associated with compliance with the Department's programs.

5.12 MUNICIPAL CONSERVATION REQUIREMENTS AND MONITORING AND REPORTING REQUIREMENTS

5-101. *Definitions*

In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases used in this chapter shall have the following meanings:

1. *“Canal” means a waterway constructed for the purpose of transporting water to a point of delivery, including main canals and lateral canals.*
2. *“CAP water” means central Arizona project water.*
3. *“Common area” means a recreational or open space area or areas owned and operated as a single integrated facility and maintained for the benefit of the residents of a housing development.*
4. *“Construction use” means a use of water for construction purposes, including the use of water for dust control, compaction and preparation of building materials on construction sites.*
5. *“Direct use effluent” means effluent that is transported directly from a facility regulated pursuant to Title 49, Chapter 2, Arizona Revised Statutes, to an end user. Direct use effluent does not include effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes.*
6. *“Effluent recovered within the area of impact” means effluent that has been stored pursuant to Title 45, Chapter 3.1, Arizona Revised Statutes, and recovered within the stored effluent’s area of impact. For purposes of this definition, “area of impact” has the same meaning as prescribed by A.R.S. § 45-802.01.*
7. *“Excluded CAP water” means CAP water that is excluded from a municipal provider’s total GPCD requirement pursuant to section 5-103, subsection E.*
8. *“Existing individual user” means an individual user that was receiving water from a municipal provider as of the date the Third Management Plan was adopted.*
9. *“Existing large provider” means a large municipal provider that was in operation and was serving water on or before January 1, 2000.*
10. *“Existing non-residential customer” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, a non-residential customer to whom the provider served water on the date the provider was accepted for regulation under the program.*
11. *“Existing residential customer” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, a residential customer to whom the provider served water on the date the provider was accepted for regulation under the program.*

12. *"Existing residential housing units" means housing units which first began using water prior to July 1, 2000.*
13. *"Existing residential population" means the portion of the service area population of a municipal provider that resides in existing residential housing units.*
14. *"Exterior water use" means non-residential or residential uses of water for landscaping, pools, evaporative cooling systems, decorative fountains, and other outdoor uses of water.*
15. *"Extinguish" means, for the Alternative Conservation Program's groundwater use limitation requirement, to cause a grandfathered groundwater right to cease to exist through a formal process established by the director.*
16. *"GPCD" means gallons of water per capita per day.*
17. *"GPHUD" means gallons of water per housing unit per day.*
18. *"Housing unit" means a group of rooms or a single room occupied as separate living quarters. Housing unit includes a single family home, a patio home, a townhouse, a condominium, an apartment, a permanently set-up mobile home or a unit in a multifamily complex. Housing unit does not include a mobile home in an overnight or limited-stay mobile home park or a unit in a campground, motel, hotel, or other temporary lodging facility. A housing unit may be occupied by a family, a family and unrelated persons living together, two or more unrelated persons living together, or by one person.*
19. *"Incidental recharge" and "incidental recharge factor" have the definitions prescribed by A.R.S. § 45-561.*
20. *"Individual user" means a person receiving water from a municipal provider for non-irrigation uses to which specific conservation requirements apply, including turf-related facilities, large-scale cooling facilities, and publicly owned rights-of-way.*
21. *"Interior water use" means non-residential or residential indoor uses of water, including toilet flushing, bathing, drinking, and washing.*
22. *"Landscapable area" means the entire area of a lot less any areas covered by structures, parking lots, roads and any other area not physically capable of being landscaped.*
23. *"Large municipal provider" means a municipal provider serving more than 250 acre-feet of water for non-irrigation use during a calendar year, not including untreated water served by a municipal provider that qualifies as a large untreated water provider.*
24. *"Large-scale cooling facility" means a facility which has control over cooling operations with a total combined cooling capacity greater than or equal to 1,000 tons. For the purposes of this definition, the minimum cooling tower size which shall be used to determine total facility cooling capacity is 250 tons. A large-scale cooling facility does not include a large-scale power plant that utilizes cooling towers to dissipate heat.*
25. *"Large untreated water provider" means a municipal provider that as of January 1, 1990 was serving untreated water to at least 500 persons or supplying at least 100 acre-feet of untreated water during the calendar year.*

26. *“Lost and unaccounted for water” means:*
- a. *With respect to a distribution system other than an untreated water municipal distribution system, the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by a municipal provider during a calendar year for non-irrigation use less the total quantity of authorized deliveries of water from any source, except direct use effluent, made by the municipal provider during the calendar year for non-irrigation use that are metered deliveries or deliveries that the municipal provider accounts for by a method of estimating water use approved by the director.*
 - b. *With respect to an untreated water municipal distribution system, the total quantity of untreated water from any source, withdrawn, diverted or received by a large untreated water provider during a calendar year for non-irrigation use less the total quantity of authorized deliveries of untreated water from any source made by the provider during the calendar year for non-irrigation use that are metered deliveries or deliveries that the provider accounts for by a method of estimating water use approved by the director.*
27. *“Lost water” means untreated water from any source that enters an untreated water distribution system and is lost from the system during transportation or distribution due to seepage, evaporation, leaks, breaks, phreatophyte use or other similar or dissimilar causes.*
28. *“Mined groundwater” has the definition prescribed by A.R.S. § 45-561.*
29. *“Multifamily housing unit” means a mobile home in a mobile home park and any permanent housing unit having one or more common walls with another housing unit located in a multifamily residential structure, and includes a unit in a duplex, triplex, fourplex, condominium development, town home development, or apartment complex.*
30. *“Municipal distribution system” means a system of pipes, canals or other works within a municipal provider’s service area which are owned and operated by the provider to collect, store, treat or deliver water for non-irrigation use.*
31. *“Municipal provider” means a city, town, private water company or irrigation district that supplies water for non-irrigation use.*
32. *“New individual user” means an individual user that begins receiving water from a municipal provider after adoption of the Third Management Plan.*
33. *“New large municipal provider” means a municipal provider that begins serving more than 250 acre-feet of water for non-irrigation use during a calendar year after January 1, 2000, not including untreated water served by a municipal provider that qualifies as a large untreated water provider.*
34. *“New multifamily housing units” means multifamily housing units which first begin using water on or after July 1, 2000.*
35. *“New multifamily population” means the portion of the service area population of a municipal provider that resides in new multifamily housing units.*

36. *“New non-residential customer” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, a non-residential customer that begins receiving water from the provider after the provider is accepted for regulation under the program.*
37. *“New residential customer” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, a residential customer that begins receiving water from the provider after the provider is accepted for regulation under the program.*
38. *“New single family housing units” means single family housing units which first begin using water on or after July 1, 2000.*
39. *“New single family population” means the portion of the service area population of a municipal provider that resides in new single family housing units.*
40. *“Non-residential customer” means a person who is supplied water by a municipal provider for a non-irrigation use other than a residential use.*
41. *“Non-residential exterior water use” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, water supplied by the provider and used for exterior water use purposes by non-residential customers, other than individual users, within the provider's service area.*
42. *“Non-residential interior water use” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, water supplied by the provider and used for interior water use purposes by non-residential customers, other than individual users, within the provider's service area.*
43. *“Reasonable Conservation Measures” or “RCMs” means policies, practices, rules, regulations, ordinances, or the use of devices, equipment, or facilities, that meet either of the following criteria:*
 - a. *An established and generally accepted practice among water providers that results in efficient use or conservation of water, or*
 - b. *A practice for which sufficient data are available from existing water conservation projects to indicate that significant water conservation or conservation related benefits can be achieved; that the practice is technically and economically reasonable and not environmentally or socially unacceptable; and that the practice is not otherwise unreasonable for most water providers to implement.*
44. *“Residential customer” means a person who is supplied water by a municipal provider for a residential use.*
45. *“Residential exterior water use” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, water supplied by the provider and used for exterior water use purposes by residential customers within the provider's service area.*

46. *“Residential interior water use” means, with respect to a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104, water supplied by the provider and used for interior water use purposes by residential customers within the provider’s service area.*
47. *“Residential use” means a non-irrigation use of water related to the activities of a single family or multifamily housing unit or units, including exterior water use.*
48. *“Service area” has the definition prescribed by A.R.S. § 45-402.*
49. *“Service area population” means the number of people residing in housing units connected to distribution lines maintained by the municipal provider within its service area which are being served as of July 1 of the applicable year, as determined pursuant to section 5-103, subsection D.*
50. *“Service connection” means a coupling of a municipal provider’s distribution system and its customer’s water system.*
51. *“Single family housing unit” means a detached dwelling, including mobile homes not in mobile home parks.*
52. *“Small municipal provider” means a municipal provider that supplies 250 or less of water for non-irrigation use during a calendar year, not including untreated water served by a municipal provider that qualifies as a large untreated water provider.*
53. *“Turf-related facility” means any facility, including cemeteries, golf courses, parks, schools or common areas of housing developments, with a water-intensive landscaped area of 10 or more acres. Turf-related facilities include, but are not limited to, those facilities listed in Appendix 6A.*
54. *“Untreated water” means water that is not treated to improve its quality and that is supplied by a municipal provider through a distribution system other than a potable water distribution system.*
55. *“Untreated water municipal distribution system” means a municipal distribution system operated by a large untreated water provider municipal provider for the purpose of delivering untreated water for non-irrigation use.*
56. *“Water-intensive landscaped area” means, for a calendar year, an area of land which is watered with a permanent water application system and planted primarily with plants not listed in Appendix 5I (Drought Tolerant/Low Water Use Plant List), or any modifications to the list, and the total surface area of all bodies of water filled or refilled with water from any source, including effluent, that are an integral part of the landscaped area. Bodies of water used primarily for swimming purposes are not an integral part of a landscaped area.*

5-102. Large Municipal Providers - Conservation Programs

- A. *Beginning with the calendar year determined under section 5-103 subsection A, paragraph 2, and continuing until the first compliance date for any substitute requirement in the Fourth Management Plan, a large municipal provider shall be regulated under the Total Gallons Per Capita Per Day (GPCD) Program described in section 5-103, unless the provider has applied*

for and been accepted for regulation under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105, or is designated as an institutional provider under section 5-108.

If a large municipal provider is accepted into the Non-Per Capita Conservation Program, the Alternative Conservation Program, or is designated as an institutional provider, the provider shall continue to comply with its total GPCD requirement until the first compliance date assigned by the director for the provider under the Alternative Conservation Program, the Non-Per Capita Conservation Program, or as an Institutional provider.

A large municipal provider that was regulated under the Non-Per Capita Conservation Program, the Alternative Conservation Program or the Institutional Provider Program under the Second Management Plan and that applies to be regulated under the same program in the Third Management Plan 180 days following adoption of the plan shall continue to be regulated under the Non-Per Capita Conservation Program, the Alternative Conservation Program or the Institutional Provider Program under the Second Management Plan, whichever applies, until January 1, 2002 or until the director approves or denies the provider's application under the Third Management Plan, whichever is later.

- B.** *A large municipal provider may apply for the Non-Per Capita Conservation Program as described in section 5-104. If the director approves the application, the provider shall comply with the requirements of the Non-Per Capita Conservation Program beginning on a date determined by the director but not later than January 1 of the year following the year in which the application is approved.*
- C.** *A large municipal provider may apply for the Alternative Conservation Program as described in section 5-105. If the director approves the application, the provider shall comply with the requirements of the Alternative Conservation Program beginning on a date determined by the director but not later than January 1 of the year following the year in which the application is approved.*
- D.** *A large municipal provider may apply for designation as an institutional provider pursuant to section 5-108. If the director approves the application, the provider shall comply with the institutional provider requirements assigned by the director beginning on a date determined by the director but not later than January 1 of the year following the year in which the application is approved.*
- E.** *A large untreated water provider shall comply with the requirements of section 5-107.*
- F.** *All municipal providers shall comply with individual user requirements, distribution system requirements, and applicable monitoring and reporting requirements as prescribed in sections 5-112, 5-113 and 5-114.*

5-103. Large Municipal Provider Total Gallons Per Capita Per Day Program

A. Total GPCD Requirement

- 1.** *Beginning with the calendar year determined under paragraph 2 of this subsection, and for each calendar year thereafter until the first compliance date for any substitute municipal conservation requirement in the Fourth Management Plan, a large municipal provider regulated under the Total GPCD Program shall not withdraw, divert or receive water from any source, except direct use effluent or effluent recovered within the area of*

impact and excluded CAP water, for non-irrigation use during a year in a total amount that exceeds its total GPCD requirement for the year as calculated in subsection B of this section, except as provided in the flexibility account provisions in section 5-106.

2. *A large municipal provider regulated under the Total GPCD Program shall begin complying with its total GPCD requirements, as calculated under subsection B of this section, beginning with the calendar year 2000, except that if the providers total GPCD requirement for the year 2000, as calculated under subsection B of this section, is lower than the provider's final total GPCD requirement under the Second Management Plan, the provider shall begin complying with its total GPCD requirements, as calculated under subsection B of this section, beginning with calendar year 2002.*

B. Calculation of the Annual Total GPCD Requirement

A large municipal provider's Total GPCD requirement for a year shall be calculated as follows:

1. *For calendar years 2000 through 2004, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of this section, by the first intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

For calendar years 2005 through 2009, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of this section, by the second intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.

For the calendar year 2010, and for each calendar year thereafter until the first compliance date for any substitute total GPCD requirement in the Fourth Management Plan, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of this section, by the final GPCD component for existing residential population as assigned to the provider in Table 5-103.A.

2. *Multiply the provider's new single family population for the year, as calculated pursuant to subsection D of this section, by 57 GPCD.*
3. *Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 149 GPHUD.*
4. *Multiply the provider's new multifamily population for the year, as calculated pursuant to subsection D of this section, by 57 GPCD.*
5. *Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 77 GPHUD.*
6. *Multiply the provider's total service area population for the year, as calculated pursuant to subsection D of this section, by the GPCD component for non-residential use as assigned to the provider in Table 5-103.A.*
7. *Divide the provider's allowable lost and unaccounted for water by the number of days in the calendar year. The provider's allowable lost and unaccounted for water is the lesser of the following:*

- a. *the provider's actual lost and unaccounted for water for the year, in gallons.*
 - b. *an amount calculated by multiplying the total gallons of water from any source, except direct use effluent, withdrawn, diverted or received by the provider during the year by 10 percent.*
8. *Add the results from paragraphs 1 through 7 of this subsection, and then divide the sum by the provider's annual service area population as of July 1 of that year. The quotient is the provider's total GPCD requirement for the calendar year.*

C. Compliance with Total GPCD Requirement

The director shall determine if a large municipal provider is in compliance with its total GPCD requirement for a calendar year pursuant to the flexibility account provisions in section 5-106, using the provider's service area population as calculated in subsection D of this section.

D. Calculation of Large Municipal Provider's Service Area Population

The director shall calculate a large municipal provider's service area population for a calendar year as follows, unless the director has approved an alternative methodology for calculating the provider's service area population prior to the calendar year in question:

1. *Determine the number of existing single family housing units and existing multifamily housing units served by the provider's distribution system as of July 1, 2000, less any existing single family housing units and any existing multifamily housing units removed from the provider's distribution system between July 1, 2000 and June 30 of the calendar year in question.*
2. *Adjust these totals by the respective average annual vacancy rate for single family housing units and multifamily housing units as calculated from the most recent census or other approved source of information.*
3. *Multiply the adjusted number of existing single family housing units calculated in paragraph 2 of this subsection by the average number of persons per occupied single family housing unit as calculated in accordance with the most recent census or other approved source of information.*
4. *Multiply the adjusted number of existing multifamily housing units calculated in paragraph 2 of this subsection by the average number of persons per occupied multifamily housing unit as calculated in accordance with the most recent census or other approved source of information.*
5. *Add the products from paragraphs 3 and 4 of this subsection. The sum is the provider's existing residential population.*
6. *Determine the number of new single family housing units and new multifamily housing units added to the provider's distribution system between July 1 of the previous calendar year and July 1 of the calendar year in question, less any new single family and new multifamily housing units removed from the system during that period.*

7. *Adjust these totals by the respective average annual vacancy rate for single family housing units and multifamily housing units as calculated from the most recent census or other approved source of information.*
8. *Multiply the adjusted number of new single family housing units calculated in paragraph 7 of this subsection by the average number of persons per occupied single family housing unit as calculated in accordance with the most recent census or other approved source of information.*
9. *Multiply the adjusted number of new multifamily housing units calculated in paragraph 7 of this subsection by the average number of persons per occupied multifamily housing unit as calculated in accordance with the most recent census or other approved source of information.*
10. *Add the product from paragraph 8 to the provider's new single family population as of July 1 of the previous year and add the product from paragraph 9 to the provider's new multifamily population as of July 1 of the previous year. The sums are the provider's new single family population and new multifamily population.*
11. *Add the results from paragraphs 5 and 10. The sum is the provider's service area population for the calendar year.*

TABLE 5-103.A
EXISTING RESIDENTIAL AND NON-RESIDENTIAL GPCD COMPONENTS
PINAL ACTIVE MANAGEMENT AREA

	<i>First Intermediate GPCD Component for Existing Residential Population (2002-2004)</i>	<i>Second Intermediate GPCD Component for Existing Residential Population (2005-2009)</i>	<i>Final GPCD Component for Existing Residential Population (2010-Fourth Management Plan)</i>	<i>GPCD Component for Non- Residential Use</i>
<i>AWC - Casa Grande</i>	<i>127</i>	<i>125</i>	<i>123</i>	<i>99</i>
<i>AWC - Coolidge</i>	<i>105</i>	<i>103</i>	<i>101</i>	<i>29</i>
<i>Town of Florence</i>	<i>121</i>	<i>119</i>	<i>117</i>	<i>80</i>
<i>City of Eloy</i>	<i>107</i>	<i>105</i>	<i>103</i>	<i>65</i>

E. Exclusion of Deliveries of Central Arizona Project Water from Total GPCD Requirement

1. Exclusion

A large municipal provider may apply to the director to have CAP water delivered by the provider to a non-residential customer excluded from the provider's total water use when determining the provider's compliance with its total GPCD requirement as established pursuant to subsection B of this section. The director shall grant a one time exclusion for a period not to exceed ten years if the director finds that all of the following apply:

- a. The provider will ultimately serve direct use effluent to the non-residential customer from a wastewater treatment plant that is either in existence or planned for construction; the provider will begin replacing the deliveries of CAP water with*

direct use effluent as soon as direct use effluent becomes available for delivery to the non-residential customer from the treatment facility; and the provider will completely replace the deliveries of CAP water with direct use effluent within a reasonable period of time, not to exceed ten years.

- b. The CAP water that the provider will deliver to the non-residential customer cannot be delivered through the provider's potable water distribution system to any of its customers located outside the boundaries of a water users association, as defined in A.R.S. § 10-140, because of treatment facility or distribution system limitations, and the provider's CAP water treatment facilities and potable water distribution system have a reasonable level of capacity.*
- c. Granting the exclusion will result in the non-residential customer receiving effluent sooner than it would if the exclusion is not granted, and the effluent that the non-residential customer will receive as a result of the exclusion would not otherwise be put to a direct beneficial use by the provider.*
- d. Neither the Non-Per Capita Conservation Program described in section 5-104 of this chapter nor the Alternative Conservation Program described in section 5-105 of this chapter are currently an appropriate conservation program for the provider.*
- e. If the non-residential customer is a turf-related facility, a large-scale cooling facility, or a publicly owned right-of-way, the customer will be required to comply with conservation requirements during the duration of the exclusion identical to the conservation requirements which would apply to the customer under section 5-112 of this chapter if the customer was using groundwater.*
- f. If the CAP water that the provider will deliver to the non-residential customer is to be recovered by the provider pursuant to a recovery well permit issued under Title 45, Chapter 3.1, Arizona Revised Statutes, the provider is unable to deliver CAP water to the customer except from a recovery well.*

2. Duration of Exclusion

The duration of any exclusion granted pursuant to paragraph 1 of this subsection shall be determined by the director at the time the exclusion is granted and shall not exceed ten years. After the exclusion has become effective, the director may at any time rescind the exclusion, or reduce the amount of the exclusion as determined pursuant to paragraph 3 of this subsection, if the director determines that one of the following applies:

- a. The large municipal provider is not delivering all available direct use effluent or effluent recovered within the area of impact to the non-residential customer.*
- b. The large municipal provider will not entirely replace the deliveries of CAP water with direct use effluent by the date determined by the director to be reasonable at the time the exclusion was granted.*
- c. The large municipal provider's CAP water treatment facilities or potable water distribution system no longer have a reasonable level of capacity.*

3. *Amount of Exclusion*

During the duration of any exclusion granted pursuant to paragraph 1 of this subsection, the amount of CAP water that shall be excluded from the large municipal provider's total water usage in any calendar year shall be calculated as follows:

- a. Determine the amount of CAP water delivered by the provider to the non-residential customer during the calendar year and then subtract from that amount any amount of water used by the non-residential customer during the year in excess of the conservation requirements applicable to such use as set forth in section 5-112 of this chapter.*
- b. The amount of CAP water that shall be excluded from the provider's total water use during the calendar year shall be the volume from subparagraph a above, but not to exceed the lesser of the following:*
 - 1) The amount of direct use effluent that will be available for delivery by the provider to the non-residential customer during the last year of the exclusion, as determined by the director at the time the exclusion is granted.*
 - 2) The amount of groundwater that would have been used by the non-residential customer during the year if the provider had not served CAP water to the customer, as determined by the director.*

4. *Agreement by Non-Residential Customer Not to Use Groundwater; Exception*

An exclusion granted pursuant to paragraph 1 of this subsection shall not become effective until the non-residential customer agrees in writing that it will not use groundwater from a source other than the large municipal provider during the duration of the exclusion, except during any temporary period in which the provider is unable to deliver a sufficient quantity of water to the customer because of distribution system failure or other emergency, and provided that the customer applies to the director in writing for permission to use the groundwater within seven days after commencement of the provider's distribution system failure or other emergency and the director approves the application in writing.

5. *Deliveries of Groundwater by Large Municipal Provider to Non-Residential Customer Included in GPCD Requirement; Exception*

During the duration of any exclusion granted pursuant to paragraph 1 of this subsection, any groundwater delivered by the large municipal provider to the non-residential customer shall be included in determining the provider's compliance with its GPCD requirement, except for groundwater delivered by the provider to the non-residential customer during any temporary period, not to exceed 30 days, in which the provider is unable to deliver a sufficient quantity of CAP water or direct use effluent to the customer because of distribution system failure or other emergency, and provided that the provider applies to the director in writing for an exclusion of such groundwater from its GPCD requirement within seven days after commencement of the distribution system failure or other emergency and the director approves the application in writing for a specified period of time.

5-104. Non-Per Capita Conservation Program

A. Eligibility for the Non-Per Capita Conservation Program

A large municipal provider may apply for the Non-Per Capita Conservation Program if any of the following applies:

- 1. The provider is a member of a groundwater replenishment district established under Title 48, Chapter 27, Arizona Revised Statutes.*
- 2. The service area of the provider has qualified as a member service area under Title 48, Chapter 22, Arizona Revised Statutes, or as a water district member under Title 48, Chapter 28, Arizona Revised Statutes, and the conditions established under A.R.S. § 45-576.01(B)(2) and (3) are met by the conservation district or the water district, as applicable, for the AMA in which the service area is located.*
- 3. The provider has developed a plan to both:*
 - a. Reduce the proportion of mined groundwater supplied by it for use within its service area such that the result computed by dividing the volume of mined groundwater supplied by the provider for use within its service area in a year by the volume of all water supplied by the provider for use within its service area in that year does not exceed:*
 - 1) Two-thirds for 2000.*
 - 2) Three-fifths for 2001.*
 - 3) Eight-fifteenths for 2002.*
 - 4) Seven-fifteenths for 2003.*
 - 5) Two-fifths for 2004.*
 - 6) One-third for 2005.*
 - 7) Four-fifteenths for 2006.*
 - 8) One-fifth for 2007.*
 - 9) Two-fifteenths for 2008.*
 - 10) One-fifteenth for 2009.*
 - b. Deliver no mined groundwater for use within its service area after January 1, 2010.*
- 4. The provider is designated as having an assured water supply under rules adopted by the director pursuant to A.R.S. § 45-576.*

B. Application for Non-Per Capita Conservation Program

A large municipal provider's application for the Non-Per Capita Conservation Program must be approved by the provider's governing body, and must include the following:

- 1. A description and evaluation, including implementation dates, of the provider's existing conservation programs.*
- 2. A description of conservation programs the provider intends to implement if approved for the Non-Per Capita Conservation Program, including a time schedule for implementing the programs.*

3. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 3, a water supply plan demonstrating that the provider will reduce the proportion of mined groundwater supplied by it within its service area to the proportions described in that subparagraph, and that it will deliver no mined groundwater after January 1, 2010.*
4. *If the provider intends to comply with subsection D of this section by implementing one or more substitute RCMs in lieu of a standard RCM, or if the provider requests the director to modify a level of conservation potential for the provider's service area pursuant to subsection D, paragraph 1, subparagraph a of this section, an analysis of water use within the provider's service area that includes all of the following:*
 - a. *If the provider intends to implement one or more substitute RCMs, information demonstrating that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM or RCMs.*
 - b. *The amount of water used each month during the past three years by each of the following water use sectors, as applicable: (1) residential (disaggregated by single family and multifamily), (2) commercial, (3) industrial, (4) turf-related facilities, (5) government, (6) construction, (7) distribution system losses, and (8) any other uses. The provider is not required to include this information if it has already been reported to the Department.*
 - c. *An identification and evaluation of the water use sectors described in item b) of this subparagraph that have the highest water conservation potential.*
5. *If the provider is requesting an individual incidental recharge factor under subsection C, paragraph 2 of this section:*
 - a. *A copy of a hydrological study that demonstrates the amount of water withdrawn, diverted or received for delivery by the provider for use within its service area during each of the preceding five years and the amount of incidental recharge that was attributable to the provider during those years. The study shall be prepared consistent with the methodology contained in Appendix 5G.*
 - b. *A copy of a hydrological study projecting the average annual amount of water that will be withdrawn, diverted or received for delivery by the provider for use within its service area during the management period and the average annual amount of incidental recharge that will be attributable to the provider during the management period.*
6. *Any other information required by the director.*

C. Incidental Recharge Factor

1. Standard Incidental Recharge Factor

The standard incidental recharge factor for the Pinal AMA for the third management period is 0 percent. The standard incidental recharge factor shall be used to calculate the amount of mined groundwater supplied during a year by a large municipal provider that applied for the Non-Per Capita Conservation Program under subsection A, paragraph 3

of this section, unless the provider applies for and is granted an individual incidental recharge factor pursuant to paragraph 2 of this subsection.

2. Individual Incidental Recharge Factor

A large municipal provider that applies for the Non-Per Capita Conservation Program under subsection A, paragraph 3 of this section may request an incidental recharge factor that is different than the standard incidental recharge factor set forth in paragraph 1 of this subsection by submitting the information described in subsection B, paragraph 5 of this section with its application. The director shall establish a different incidental recharge factor for the provider, as described in Appendix 5G, if the information submitted by the provider demonstrates that the ratio of the average annual amount of incidental recharge expected to occur within the provider's service area during the third management period to the average annual amount of water expected to be supplied by the provider for use within its service area during the third management period is different than the standard incidental recharge factor. If the director establishes an individual incidental recharge factor for the provider under this paragraph, the individual incidental recharge factor shall be used to calculate the amount of mined groundwater supplied by the provider during a year.

D. Criteria for Approval of Application

A large municipal provider that applies for the Non-Per Capita Conservation Program shall be approved for the program only if all of the following conditions are satisfied, as applicable:

- 1. The provider agrees in writing to implement RCMs that the director determines will, if properly implemented, result in the achievement of a water use efficiency within the provider's service area equivalent to the water use efficiency assumed in the provider's total GPCD requirements for the third management period. To comply with this requirement, the provider must agree in writing to implement the following RCMs for the following water use categories and programs beginning on a date agreed upon by the director and the provider:*

a. Residential Water Use

- 1) Residential interior water use category - The provider shall agree in writing to implement the residential interior standard RCMs described in Appendix 5F.1. In lieu of implementing one or both of the standard RCMs, the provider may agree to implement one or more of the residential interior substitute RCMs or system-related substitute RCMs listed in the substitute RCM list described in Appendix 5F.4. if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*
- 2) Residential exterior water use category - The provider shall agree in writing to implement the residential exterior standard RCMs described in Appendix 5F.1. In lieu of implementing one or more of the standard RCMs, the provider may agree to implement one or more of the residential exterior substitute RCMs or system-related substitute RCMs listed in the substitute RCM list described in Appendix 5F.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area*

equivalent to the efficiency that would result from implementation of the standard RCM.

- 3) Implementation level - The provider shall agree to implement residential interior or exterior RCMs for existing residential customers at the implementation level (minimum, moderate or maximum) that corresponds to the level of conservation potential that the director determined existed for interior and exterior water use by existing residential users within the provider's service area when the director established the provider's total GPCD requirements for the third management period, as shown in Table 5-104.D.

The director may modify a level of conservation potential shown for a provider in Table 5-104.D if the provider requests a modification in an application for administrative review pursuant to A.R.S. § 45-575(A) or in the provider's application for regulation under the Non-Per Capita Conservation Program, and the provider demonstrates that the level of conservation potential shown in Table 5-104.D is not accurate for the provider's service area. A provider requesting a modification of a level of conservation potential shall submit to the director a water use analysis containing the information described in subsection B, paragraph 4, of this section. If the level of conservation potential for interior or exterior water use by existing residential users as shown in Table 5-104.D, or as modified by the director, is "no reduction," the provider is not required to implement any RCMs for existing residential customers in that water use category.

b. Non-Residential Water Use

- 1) Non-residential interior water use category - The provider shall agree in writing to implement the non-residential interior standard RCMs described in Appendix 5F.2. In lieu of implementing one or more of the standard RCMs, the provider may agree to implement one or more of the non-residential interior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5F.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.

**TABLE 5-104.D
EXISTING RESIDENTIAL CONSERVATION POTENTIAL
PINAL ACTIVE MANAGEMENT AREA**

Large Municipal Provider	Existing Conservation Potential
AWC - Casa Grande	Minimum
AWC - Coolidge	Minimum
Town of Florence	Minimum
City of Eloy	Minimum

- 2) Non-residential exterior water use category - The provider shall agree in writing to implement the non-residential exterior standard RCMs described in Appendix 5F.2. In lieu of implementing one or both of the standard RCMs, the provider may agree to implement one or more of the non-residential exterior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5F.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.

c. *Public Education Program*

The provider shall agree in writing to implement the education standard RCM described in Appendix 5F.3. In lieu of implementing the standard RCM, the provider may agree to implement one or more of the education substitute RCMs listed in the substitute RCM list described in Appendix 5F.4. The substituted RCM or RCMs must not duplicate other RCMs that the provider will implement as part of the Non-Per Capita Conservation Program.

2. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 1 of this section, the provider will be accepted into the program only if the conditions established in A.R.S. § 45-576.01(A)(2) and (3) are met by the groundwater replenishment district of which the provider is a member.*
3. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 2 of this section, the provider will be accepted into the program only if the conditions established in A.R.S. § 45-576.01(B)(2) and (3) are met for the AMA by the multi-county water conservation district or AMA water district of which the provider is a member.*
4. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 3 of this section, the provider will be accepted into the program only if the director has determined that the provider will reduce the proportion of mined groundwater supplied within its service area to the proportions described in that subparagraph.*
5. *If the provider is applying for the Non-Per Capita Conservation Program under subsection A, paragraph 4 of this section, the provider will be accepted into the program only if the director determines that the provider is designated as having an assured water supply under the rules adopted by the director under A.R.S. § 45-576.*

E. Non-Per Capita Conservation Program Requirements

A large municipal provider regulated under the Non-Per Capita Conservation Program shall comply with the following requirements, as applicable, until the effective date of any substitute conservation requirements established in the Fourth Management Plan:

1. *The provider shall implement the RCMs agreed to in writing under subsection D, paragraph 1 of this section beginning on a date agreed upon by the director and the provider.*

2. *If the provider applied for the Non-Per Capita Conservation Program under subsection A, paragraph 3 of this section, the provider shall reduce the proportion of mined groundwater supplied within its service area to the proportions described in that paragraph. A provider's failure to comply with this requirement during any year will be excused if the provider demonstrates to the director's satisfaction that the failure was due to drought conditions or the failure of a surface water distribution system.*
3. *If the provider applied for the Non-Per Capita Conservation Program under subsection A, paragraph 4 of this section, the provider shall not supply groundwater for use within its service area in an amount that exceeds the amount of groundwater that the provider may supply for use within its service area consistent with the rules adopted by the director pursuant to A.R.S. § 45-576. If the provider's designation of assured water supply is revoked or otherwise terminates after the provider is accepted into the program, the amount of groundwater the provider may supply for use within its service area consistent with the rules shall be determined by the director as the amount of groundwater the provider would have been allowed to supply under the rules if the provider's designation of assured water supply had not been revoked or terminated.*

5-105. *Alternative Conservation Program*

A. *Eligibility for the Alternative Conservation Program*

A large municipal provider is eligible to apply for the Alternative Conservation Program if one of the following applies:

1. *The provider is designated as having an assured water supply under rules adopted by the director pursuant to A.R.S. § 45-576.*
2. *The provider agrees to limit its annual use of groundwater withdrawn from within the AMA as provided in subsection C, paragraph 1, subparagraph a, item 2 of this section.*

B. *Application for Alternative Conservation Program*

A large municipal provider's application for the Alternative Conservation Program must be approved by the provider's governing body, and must include the following:

1. *A plan to limit the provider's overall groundwater withdrawals as required by subsection C, paragraph 1 of this section.*
2. *A description and evaluation, including implementation dates, of the provider's existing conservation programs.*
3. *A description of the proposed conservation strategies for all existing and new non-residential customers to be implemented by the provider under this program and the provider's schedule for implementation of all proposed conservation measures.*
4. *If the provider intends to comply with subsection C, paragraph 3 of this section by implementing one or more substitute non-residential RCMs in lieu of a standard non-residential RCM, an analysis of water use within the provider's service area which includes all of the following:*

- a. *A demonstration that the substituted RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*
- b. *The amount of water used each month during the past three years by each of the following water use sectors, as applicable: (1) residential (disaggregated by single family and multifamily), (2) commercial, (3) industrial, (4) turf-related facilities, (5) government, (6) construction, (7) distribution system losses, and (8) any other uses. The provider is not required to include this information if it has already been reported to the Department.*
- c. *An identification and evaluation of the water use sectors described in subparagraph b of this paragraph that have the highest water conservation potential.*

C. *Alternative Conservation Program Requirements*

1. *Groundwater Use Limitation Requirement*

- a. *Beginning with a calendar year agreed upon by the director and a large municipal provider regulated under the Alternative Conservation Program, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the provider shall limit its annual use of groundwater withdrawn from within the AMA to the following, as applicable:*
 - 1) *If the provider is designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, the amount of groundwater which the provider may use consistent with the rules, including any amount of groundwater that will be replenished by a conservation district pursuant to Title 48, Chapter 22, Arizona Revised Statutes.*
 - 2) *If the provider is not designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, one of the following, as applicable:*
 - a) *If the provider was serving water as a large municipal provider on or before January 1, 1990, the provider's largest legal groundwater use during any one calendar year from calendar year 1980 through calendar year 1989.*
 - b) *If the provider began serving water as a large municipal provider after January 1, 1990 but before January 1, 2000, 50 percent of the provider's largest legal groundwater use during any one calendar year from January 1, 1990 through calendar year 1999.*
- b. *The large municipal provider may achieve compliance with the groundwater use limitation requirement described in subparagraph a, item 2 of this paragraph by permanently extinguishing or causing to be permanently extinguished grandfathered rights to groundwater as described in subparagraph c of this paragraph, by serving groundwater that will be replenished by a conservation district pursuant to Title 48, Chapter 22, Arizona Revised Statutes, by using remediated groundwater that is consistent with the accounting for surface water as provided in section 5-115, or by substituting non-groundwater supplies or groundwater withdrawn from outside the*

AMA for groundwater withdrawn from within AMA, or by a combination of these methods.

c. Extinguishment of Groundwater Uses Associated with Grandfathered Rights

1) Applicability

Only irrigation grandfathered rights, Type 1 non-irrigation grandfathered rights and Type 2 non-irrigation grandfathered rights, as described in A.R.S. §§ 45-462 through 45-465, may be extinguished to meet the groundwater use limitation requirement. The large municipal provider shall not receive credit toward the achievement of the groundwater use limitation requirement for the extinguishment of either a Type 2 non-irrigation grandfathered right used for electrical energy generation or mineral extraction or processing purposes, or a Type 1 or Type 2 non-irrigation grandfathered right owned or previously owned by a municipal provider and used or previously used to serve the municipal provider's service area.

2) Annual Credits

The director shall determine the amount of annual credit a large municipal provider obtains for extinguishment of grandfathered rights to groundwater as follows:

- a) For each irrigation grandfathered right extinguished or caused to be extinguished by the provider, the annual credit shall be the amount calculated by multiplying 1.5 acre-feet per acre by the number of water duty acres associated with the extinguishment, less any debits, in acre-feet, in the farm's operating flexibility account at the time the right is extinguished.*
- b) For each Type 1 non-irrigation grandfathered right or portion of such right extinguished or caused to be extinguished by the provider, the annual credit shall be the amount calculated by multiplying 1.5 acre-feet per acre by the number of acres to which the Type 1 non-irrigation grandfathered right is appurtenant, or a proportional amount thereof if only a portion of the right is extinguished.*
- c) For each Type 2 non-irrigation grandfathered right extinguished or caused to be extinguished by the provider, the annual credit shall be the full amount, in acre-feet, of the certificated Type 2 non-irrigation grandfathered right.*

3) Proof of Extinguishment

In order for a large municipal provider to obtain an annual credit for extinguishing or causing to be extinguished a grandfathered right to groundwater, the holder of the grandfathered right must deliver the Certificate of Grandfathered Right to the director before the calendar year in which the credit will be used, request that the grandfathered right be extinguished, and direct that the provider receive the annual credit. Only one provider may receive annual credit for any one portion of a grandfathered right which has been extinguished.

d. Compliance

The director shall determine whether a large municipal provider is in compliance with its groundwater use limitation requirement, as described in subparagraph a, item 2) of this paragraph in a calendar year as follows:

- 1) Add together the amount of annual credits received by the provider for extinguishing grandfathered rights to groundwater after January 1, 1990 pursuant to subparagraph c of this paragraph and pursuant to the Alternative Conservation Program in the second management plan.*
- 2) Calculate the total volume of groundwater, in acre-feet, which the provider withdrew, diverted or received during the calendar year for use within the provider's service area. In making this calculation, the director shall not include any groundwater that a conservation district replenished or is obligated to replenish under Title 48, Chapter 22, Arizona Revised Statutes or any remediated groundwater qualifying under section 5-115.*
- 3) Subtract the amount calculated in item 1) above from the volume calculated in item 2) above.*
- 4) A provider is in compliance with its groundwater use limitation requirement if the amount calculated in item 3) of this subparagraph is equal to or less than the following, as applicable:*
 - a) If the provider was serving water as a large municipal provider on or before January 1, 1990, the provider's largest legal groundwater use during any one calendar year from calendar year 1980 through calendar year 1989.*
 - b) If the provider began serving water as a large municipal provider after January 1, 1990 but before January 1, 2000, 50 percent of the provider's largest legal groundwater use during any one calendar year from January 1, 1989 through calendar year 1999.*

Annual credits which are not needed by the provider to comply with its groundwater use limitation requirement in one calendar year shall not carry forward to any following calendar year.

2. Residential GPCD Requirement

- a. Beginning with a calendar year agreed upon by the director and a large municipal provider regulated under the Alternative Conservation Program, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the provider shall not serve water from any source, except direct use effluent or effluent recovered within the area of impact, for residential use during a calendar year in a total amount that exceeds its residential GPCD requirement for the year, except as provided in the flexibility account provisions in section 5-106. Each year, the annual residential GPCD requirement for a provider regulated under the Alternative Conservation Program shall be calculated as follows:*

- 1) *For each calendar year 2002 through 2004, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the first intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.*

For calendar years 2005 through 2009, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the second intermediate GPCD component for existing residential population as assigned to the provider in Table 5-103.A.

For the calendar year 2010, and for each calendar year thereafter until the first compliance date for any substitute GPCD requirement in the Fourth Management Plan, multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the final GPCD component for existing residential population as assigned to the provider in Table 5-103.A.

- 2) *Multiply the provider's new single family population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*
- 3) *Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 149 GPHUD.*
- 4) *Multiply the provider's new multifamily population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*
- 5) *Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 77 GPHUD.*
- 6) *Add the products from items 1) through 5) of this subparagraph, and then divide the sum by the provider's service area population as of July 1 of the calendar year. The quotient is the provider's residential GPCD requirement for the calendar year.*

b. Compliance with Residential GPCD Requirement

The director shall determine if a large municipal provider regulated under the Alternative Conservation Program is in compliance with its residential GPCD requirement pursuant to the flexibility account provisions in section 5-106.

3. Non-Residential Requirement

- a. *A large municipal provider regulated under the Alternative Conservation Program shall agree in writing to implement the following non-residential RCMs beginning on a date agreed upon by the director and the provider:*
 - 1) *Non-Residential Interior Requirements - The provider shall agree in writing to implement the non-residential interior standard RCMs described in Appendix 5F.2. In lieu of implementing one or more of the standard RCMs, the provider may agree to implement one or more of the non-residential interior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5F.4 if the director determines that the substitute RCM or RCMs will be*

designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.

- 2) *Non-Residential Exterior Requirements* - *The provider shall agree in writing to implement the non-residential exterior standard RCMs described in Appendix 5F.2. In lieu of implementing one or both of the standard RCMs, the provider may agree to implement one or more of the non-residential exterior substitute RCMs or system-related RCMs listed in the substitute RCM list described in Appendix 5F.4 if the director determines that the substitute RCM or RCMs will be designed to achieve a water use efficiency within the provider's service area equivalent to the efficiency that would result from implementation of the standard RCM.*

5-106. Compliance with Total GPCD Requirement and Residential GPCD Requirement - Flexibility Account

A. Total GPCD Program Flexibility Account

The director shall determine if a large municipal provider regulated under the Total Gallons Per Capita Per Day Program is in compliance with its annual total GPCD requirement through the maintenance of a flexibility account for the provider that shall operate as follows:

1. *Each provider regulated under the Total Gallons Per Capita Per Day Program shall be assigned a flexibility account. The beginning balance in the flexibility account of a provider that was regulated under the Total Gallons Per Capita Per Day Program in the Second Management Plan shall be the ending balance in the flexibility account maintained for the provider under section 5-105 of the Second Management Plan. The beginning balance in the flexibility account of all other large municipal providers shall be zero.*
2. *Following each calendar year in which the provider withdraws, diverts or receives groundwater for non-irrigation use, beginning with the calendar year determined under section 5-103, subsection A, paragraph 2, or the calendar year in which the provider first becomes a large municipal provider, whichever is later, the director shall adjust the provider's flexibility account as follows:*
 - a. *Determine the total gallons of water from any source, except direct use effluent or effluent recovered within the area of impact and excluded CAP water, withdrawn, diverted or received by the provider during the calendar year for non-irrigation use, and then subtract that amount from the amount of water the provider could legally withdraw, divert or receive during the calendar year for non-irrigation use, as calculated in subparagraph d of this paragraph.*
 - b. *If the result in subparagraph a above is negative, debit the flexibility account by this volume.*
 - c. *If the result in subparagraph a above is positive, credit the flexibility account by this volume.*
 - d. *The amount of water which a provider regulated under the Total Gallons Per Capita Per Day Program can legally withdraw, divert or receive for non-irrigation use*

during a calendar year is calculated by multiplying the provider's total GPCD requirement for the calendar year, as calculated pursuant to section 5-103, subsection B, by the provider's service area population as of July 1 of the year, as calculated pursuant to section 5-103 subsection D, and then multiplying the product by the number of days in the calendar year.

3. *The account balance existing in a provider's flexibility account after the adjustment provided for in paragraph 2 of this subsection is made shall carry forward subject to the following limitations:*
 - a. *The maximum positive account balance allowed in the flexibility account of a provider regulated under the Total Gallons Per Capita Per Day Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar year by a GPCD rate of 45, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum positive account balance after any credits are registered, the balance carried forward shall equal the maximum positive account balance allowed in the provider's flexibility account for that year.*
 - b. *The maximum negative account balance allowed in the flexibility account of a provider regulated under the Total Gallons Per Capita Per Day Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar year by a GPCD rate of -15, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum negative account balance after any debits are registered, the balance carried forward shall equal the maximum negative account balance allowed in the provider's flexibility account for that year.*

B. *Alternative Conservation Program Flexibility Account*

The director shall determine if a large municipal provider regulated under the Alternative Conservation Program is in compliance with its annual residential GPCD requirement through the maintenance of a flexibility account for the provider that shall operate as follows:

1. *Each provider regulated under the Alternative Conservation Program shall be assigned a flexibility account with a beginning balance to be calculated by the director based on the ending balance in the provider's flexibility account while the provider was regulated under the Total Gallons Per Capita Per Day Program or under the Alternative Conservation Program of the Second Management Plan, whichever applies.*
2. *Following each calendar year in which the provider delivers groundwater for residential use, beginning with the calendar year agreed upon by the director and the provider, the director shall adjust the provider's flexibility account balance as follows:*
 - a. *Determine the total gallons of water from any source, except direct use effluent or effluent recovered within the area of impact served by the provider during the calendar year for residential use, and then subtract that amount from the amount of water the provider could legally serve during the calendar year for residential use, as calculated in subparagraph d of this paragraph.*
 - b. *If the result in paragraph a above is negative, debit the flexibility account by this volume.*

- c. *If the result in paragraph a above is positive, credit the flexibility account by this volume.*
 - d. *The amount of water that a provider regulated under the Alternative Conservation Program can legally serve for residential use during a calendar year is calculated by multiplying the provider's residential GPCD requirement for the calendar year, as calculated pursuant to section 5-105, subsection C, paragraph 2, by the provider's service area population as of July 1 of the year as calculated pursuant to section 5-103, subsection D, and then multiplying the product by the number of days in the calendar year.*
3. *The account balance existing in a provider's flexibility account after the adjustment provided for in paragraph 2 of this subsection is made shall carry forward subject to the following limitations:*
 - a. *The maximum positive account balance allowed in the flexibility account of a provider regulated under the Alternative Conservation Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar by a GPCD rate of 30, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum positive account balance after any credits are registered, the balance carried forward shall equal the maximum positive account balance allowed in the provider's flexibility account for that year.*
 - b. *The maximum negative account balance allowed in the flexibility account of a large provider regulated under the Alternative Conservation Program shall be calculated by multiplying the provider's service area population as of July 1 of the calendar year by a GPCD rate of -10, and then multiplying that product by the number of days in the calendar year. If the account balance exceeds the maximum negative account balance after any debits are registered, the balance carried forward shall equal the maximum negative account balance allowed in the provider's flexibility account for that year.*

C. Compliance Status

If the adjustment to a large municipal provider's flexibility account following a calendar year as provided for in subsection A or B of this section causes the account to have a negative account balance that exceeds the maximum negative account balance allowed in the provider's flexibility account for the year as calculated in subsection A, paragraph 3 or subsection B, paragraph 3, the provider is out of compliance for that calendar year.

5-107. Conservation Requirements for Large Untreated Water Providers

A. Rate of Use Requirement

Beginning on January 1, 2002, and continuing thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, a large untreated water provider shall not serve an amount of untreated water during a calendar year which exceeds an amount calculated as follows:

1. *Determine the number of gross acres of land to which the provider delivers untreated water during the calendar year. Gross acres do not include those acres regulated as a turf-related facility under section 5-112, subsection A, paragraph 1.*

2. *Multiply the number of gross acres determined in paragraph 1 of this subsection above by an average annual application rate of 4.0 acre-feet of untreated water per gross acre.*

B. Compliance

A large untreated water provider is in compliance with its rate of use requirement as set forth in subsection A of this section for a calendar year if one of the following applies:

1. *The amount of untreated water served by the provider during the calendar year does not exceed the amount of water calculated in subsection A of this section; or*
2. *The aggregate amount of untreated water served by the provider during that calendar year and the preceding two calendar years divided by three does not exceed the sum of the amount of untreated water calculated in subsection A of this section for those three years divided by three.*

5-108. Conservation Requirements for Institutional Providers

- A. *If a large municipal provider operates primarily for the purpose of serving water to institutions, including prisons, hospitals, military installations, airports and schools, and supplies or expects to supply more than 90 percent of its total non-irrigation deliveries to one or more of these institutions, the provider may apply to the director for designation as an institutional provider. The director may deem a facility other than one of those listed above as an institution if its water use characteristics are similar to the types of institutions listed above.*
- B. *A large municipal provider regulated as an institutional provider in the Second Management Plan may reapply to the director to be designated as an institutional provider under the Third Management Plan any time after it has been noticed of its total GPCD requirements for the Third Management Plan.*
- C. *A large municipal provider applying for designation as an institutional provider shall apply on a form prescribed and furnished by the director. The large provider shall provide information in sufficient detail to allow the director to evaluate the provider's conservation potential and to establish appropriate conservation requirements for the provider.*
- D. *The director shall approve a large municipal provider's application for designation as an institutional provider if the provider meets the criteria in subsection A of this section, and demonstrates that it does not qualify for the Non-Per Capita Conservation Program or the Alternative Conservation Program.*
- E. *Each large municipal provider designated as an institutional provider shall be assigned mandatory conservation requirements and monitoring and reporting requirements, including a maximum residential GPCD requirement and appropriate conservation measures for non-residential uses. The institutional provider shall comply with the assigned conservation requirements by the date specified by the director, but not later than January 1 of the year following the year in which the provider's application is approved, and shall remain in compliance with those requirements until the first compliance date for any substitute requirements in the Fourth Management Plan.*

5-109. Consolidation of Municipal Provider Service Areas; Acquisition of a Portion of Another Municipal Provider's Service Area

A. Notification

1. *If two or more municipal providers consolidate their service areas into one service area, the consolidated provider shall notify the Department of the consolidation within 30 days after the consolidation becomes effective.*
2. *If a municipal provider acquires a portion of another municipal provider's existing service area, both the acquiring provider and the conveying provider shall notify the Department of the acquisition within 30 days after the acquisition becomes effective.*

B. Regulation of Consolidated Provider

1. *Upon consolidation, a consolidated provider that qualifies as a large municipal provider shall be regulated under the Total GPCD Program described in section 5-103, unless the consolidated provider applies for and is accepted for regulation under the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105.*
2. *If the consolidated provider is regulated under the Total GPCD Program, the director shall establish a total GPCD requirement for the consolidated provider consistent with the methodology used by the director to establish the consolidating providers' total GPCD requirements as set forth in Appendix 5B.1. The director shall also establish and maintain a flexibility account for the consolidated provider in accordance with section 5-106, subsection A, with a beginning balance to be established by the director based on the ending balances in the flexibility accounts of the consolidating providers.*
3. *If the consolidated provider is accepted for regulation under the Alternative Conservation Program, the director shall establish a residential GPCD requirement for the consolidated provider consistent with the methodology used by the director to establish the consolidating providers' residential GPCD requirements as set forth in Appendix 5B.1. The director shall also establish and maintain a flexibility account for the consolidated provider in accordance with section 5-106, subsection B, with a beginning balance to be established by the director based on the ending balances in the flexibility accounts of the consolidating providers.*
4. *If the consolidated provider applies for regulation under the Non-Per Capita Conservation Program or the Alternative Conservation Program and one of the consolidating providers was regulated under that program immediately prior to consolidation, the consolidated provider's application for regulation under the program shall include only the information required by section 5-104 or section 5-105 that has changed since the consolidating provider filed its application for the program.*

C. Regulation of Acquiring Provider

1. *Except as provided in paragraph 2 of this subsection, a large municipal provider that acquires a portion of another provider's existing service area shall continue to be regulated under the conservation program that the acquiring provider was regulated under immediately prior to the acquisition.*

2. *If the acquiring provider was regulated under either the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105 immediately prior to the acquisition, the acquiring provider shall be regulated under the Total GPCD Program beginning on January 1 of the first calendar year after the acquisition unless the provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, within 180 days after the acquisition. If the acquiring provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program within 180 days after the acquisition, both of the following shall apply:*
 - a. *The provider shall continue to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, until the director makes a final decision on the provider's application.*
 - b. *The provider's application shall include only the information required by section 5-104 or section 5-105 that has changed since the provider filed its original application for the program.*
3. *If the acquiring provider is regulated under the Total GPCD Program after the acquisition, the director shall establish a new total GPCD requirement for the provider consistent with the methodology used to establish the provider's total GPCD requirement in Appendix 5B.1, taking into account the addition to the provider's service area. The director may also adjust the balance in the acquiring provider's flexibility account maintained under section 5-106, subsection A, to take into account the balance in the conveying provider's flexibility account at the time of the conveyance.*
4. *If the acquiring provider is regulated under the Alternative Conservation Program after the acquisition, the director shall establish a new residential GPCD requirement for the provider consistent with the methodology used to establish the residential GPCD requirements in Appendix 5B.1, taking into account the addition to the provider's service area. The director may also adjust the balance in the acquiring provider's flexibility account maintained under section 5-106, subsection A, to take into account the balance in the conveying provider's flexibility account at the time of the conveyance.*

D. Regulation of Conveying Provider

1. *Except as provided in paragraph 2 of this subsection, a large municipal provider that conveys a portion of its service area to another provider and that qualifies as a large municipal provider after the conveyance shall continue to be regulated under the conservation program that the provider was regulated under immediately prior to the conveyance.*
2. *If the conveying provider was regulated under either the Non-Per Capita Conservation Program described in section 5-104 or the Alternative Conservation Program described in section 5-105 immediately prior to the acquisition and if the conveying provider qualifies as a large municipal provider after the conveyance, the conveying provider shall be regulated under the Total GPCD Program beginning on January 1 of the first calendar year after the acquisition unless the provider reapplies to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, within 180 days after the conveyance. If the conveying provider reapplies to be regulated under the Non-Per Capita Conservation Program or the*

Alternative Conservation Program within 180 days after the conveyance, both of the following shall apply:

- a. The provider shall continue to be regulated under the Non-Per Capita Conservation Program or the Alternative Conservation Program, whichever is applicable, until the director makes a final decision on the provider's application.*
 - b. The provider's application shall include only the information required by section 5-104 or section 5-105 that has changed since the provider filed its original application for the program.*
- 3. If the conveying provider is regulated under the Total GPCD Program after the conveyance, the director shall establish a new total GPCD requirement for the provider consistent with the methodology used to establish the total GPCD requirements in Appendix 5B.1, taking into account the reduction in the provider's service area. The director may also adjust the balance in the conveying provider's flexibility account maintained under section 5-106 to take into account the reduction in the provider's service area.*
 - 4. If the conveying provider is regulated under the Alternative Conservation Program after the conveyance, the director shall establish a new residential GPCD requirement for the provider consistent with the methodology used to establish the residential GPCD requirements in Appendix 5B.1, taking into account the reduction in the provider's service area. The director may also adjust the balance in the conveying provider's flexibility account maintained under section 5-106 to take into account the reduction in the provider's service area.*

5-110. Conservation Requirements for New Large Municipal Providers

A. Total GPCD Program

- 1. A new large municipal provider shall be assigned to the Total GPCD Program described in section 5-103 and shall comply with its annual total GPCD requirement no later than the second full calendar year after the provider is given written notice of the requirement by the director, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan.*
- 2. A new large municipal provider's total GPCD requirement for a year shall be calculated as follows:*
 - a. For calendar years 2002 through 2004, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of section 5-103, by the provider's first intermediate GPCD component for existing residential population as determined by the director after the provider qualifies as a new large provider. In determining the provider's first intermediate GPCD component for existing residential population, the director shall calculate the existing residential component for existing large municipal providers, taking into consideration already existing conservation measures.*

For calendar years 2005 through 2009, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of section 5-103, by the provider's second intermediate GPCD component for existing residential

population as determined by the director after the provider qualifies as a new large provider. In determining the provider's second intermediate GPCD component for existing residential population, the director shall calculate the existing residential component for existing large municipal providers, taking into consideration already existing conservation measures.

For the calendar year 2010, and for each calendar year thereafter until the first compliance date for any substitute total GPCD requirement in the Fourth Management Plan, multiply the provider's existing residential population for the year, as calculated pursuant to subsection D of section 5-103, by the provider's final GPCD component for existing residential population as determined by the director after the provider qualifies as a new large provider. In determining the provider's final GPCD component for existing residential population, the director shall calculate the existing residential component for existing large municipal providers, taking into consideration already existing conservation measures.

- b. Multiply the provider's new single family population for the year, as calculated pursuant to subsection D of section 5-103, by 57 GPCD.*
- c. Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 149 GPHUD.*
- d. Multiply the provider's new multifamily population for the year, as calculated pursuant to subsection D of section 5-103, by 57 GPCD.*
- e. Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 77 GPHUD.*
- f. Determine the provider's non-residential GPCD by dividing the total non-residential water delivered, in gallons, during the calendar year by the service area population for the calendar year, as calculated pursuant to subsection D of section 5-103, and dividing by the number of days in the calendar year. The non-residential GPCD component equals the non-residential GPCD rate for the calendar year up to 20 GPCD. If the non-residential GPCD rate for the calendar year is greater than 20 GPCD, the non-residential component shall be 20 GPCD.*
- g. Divide the provider's allowable lost and unaccounted for water by the number of days in the calendar year. The provider's allowable lost and unaccounted for water is the lesser of the following:*
 - 1) the provider's actual lost and unaccounted for water for the year, in gallons.*
 - 2) an amount calculated by multiplying the total gallons of water from any source, except direct use effluent, withdrawn, diverted or received by the provider during the year for non-irrigation use by 10 percent.*
- h. Add the results from paragraphs a through g of this section, and then divide the sum by the provider's annual service area population as of July 1 of that year, as determined pursuant to subsection D of section 5-103. The quotient is the provider's total GPCD requirement for the calendar year.*

3. *The director shall determine if a new large municipal provider is in compliance with its annual total GPCD requirement pursuant to the flexibility account provisions in section 5-106.*

B. *Non-Per Capita Conservation Program*

A new large municipal provider may apply for regulation under the Non-Per Capita Conservation Program in accordance with section 5-104.

C. *Alternative Conservation Program*

1. *Application*

A new large municipal provider may apply for regulation under the Alternative Conservation Program in accordance with section 5-105.

2. *Substitute Groundwater Use Limitation Requirement*

A new large municipal provider accepted into the Alternative Conservation Program is exempt from complying with the groundwater use limitation requirement as described in section 5-105, subsection C, paragraph 1, subparagraph a, but shall limit its annual groundwater use to the following amount as applicable:

- a. *If the provider is designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, the amount the provider is allowed to use under those rules.*
- b. *If the provider is not designated as having an assured water supply under the rules adopted by the director pursuant to A.R.S. § 45-576, the amount that it would be allowed to use if it was designated as having an assured water supply under those rules, as determined by the director.*

3. *Annual Residential GPCD Requirement*

a. *Requirement*

A new large municipal provider regulated under the Alternative Conservation Program shall comply with its annual residential GPCD requirement for each calendar year as described in section 5-105, subsection C, paragraph 2, subparagraph a.

b. *Calculation of Annual Residential GPCD Requirement*

Each year the annual residential GPCD requirement for a new large municipal provider regulated under the Alternative Conservation Program shall be calculated as follows:

- 1) *Multiply the provider's existing residential population for the year, as calculated pursuant to section 5-103, subsection D, by the GPCD component for existing residential population as determined by the director. The GPCD components shall assume the implementation of conservation measures appropriate for the*

characteristics of the provider's service area, taking into consideration already existing conservation measures.

- 2) Multiply the provider's new single family population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*
- 3) Multiply the number of new single family housing units within the provider's service area as of July 1 of the calendar year in question by 149 GPHUD.*
- 4) Multiply the provider's new multifamily population for the year, as calculated pursuant to section 5-103, subsection D, by 57 GPCD.*
- 5) Multiply the number of new multifamily housing units within the provider's service area as of July 1 of the calendar year in question by 77 GPHUD.*
- 6) Add the products from items 1) through 5) of this subparagraph, and then divide the sum by the provider's service area population as of July 1 of the calendar year. The quotient is the provider's residential GPCD requirement for the calendar year.*

c. Compliance with Annual Residential GPCD Requirement

The director shall determine if a new large municipal provider regulated under the Alternative Conservation Program is in compliance with its annual residential GPCD requirement pursuant to the flexibility account provisions in section 5-106.

4. Non-Residential Conservation Programs

A new large municipal provider regulated under the Alternative Conservation Program shall implement conservation programs for its non-residential customers in accordance with section 5-105, subsection C, paragraph 3.

5-111. Conservation Requirements for Small Municipal Providers

- A. By January 1, 2002, or upon commencement of service of water, whichever is later, and until the first compliance date for any substitute requirements in the Fourth Management Plan, a small municipal provider shall adopt and implement a program to achieve the following goals:*
 - 1. Minimize waste of all water supplies.*
 - 2. Maximize efficiency in outdoor watering.*
 - 3. Encourage reuse of water supplies.*
 - 4. Reduce its total GPCD usage.*

5-112. Individual User Requirements for Municipal Providers and Individual Users

A. Individual User Requirements

Beginning January 1, 2002, or upon commencement of service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, the municipal provider or individual user responsible for compliance with the individual user requirements under subsection B of this section shall comply with the following, as applicable:

- 1. The municipal provider or individual user shall serve water to, or use water within, a turf-related facility only in accordance with sections 6-302 through 6-304 of the Industrial Chapter of the Third Management Plan, and shall comply with the monitoring and reporting requirements set forth in section 6-305 of the Industrial Chapter, as though the individual user were an industrial user. The person responsible for compliance shall also comply with the requirements contained in section 6-202 of the Industrial Chapter, if applicable, as though the individual user were an industrial user.*
- 2. The municipal provider or individual user shall serve water to, or use water within, a large-scale cooling facility only if the person using water at the facility complies with all applicable conservation requirements contained in sections 6-702 and 6-703 of the Industrial Chapter of the Third Management Plan as though the person was an industrial user. The person responsible for compliance shall also comply with the applicable monitoring and reporting requirements contained in section 6-203 and the conservation requirements contained in section 6-202 of the Industrial Chapter, if applicable, as though the individual user were an industrial user.*
- 3. The municipal provider or individual user shall serve or use groundwater for the purpose of watering landscaping plants planted on or after January 1, 1987 within any publicly owned right-of-way of a highway, street, road, sidewalk, curb or shoulder that is used for travel in any ordinary mode, including pedestrian travel, only if the plants are listed in Appendix 5I. The director may waive this requirement upon request from the municipal provider or individual user if a waiver of this requirement is in the public interest. This requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.*
- 4. The municipal provider or individual user shall not serve or use groundwater for the purpose of maintaining a water feature, including fountains, waterfalls, ponds, water courses, and other artificial water structures installed after January 1, 2002 within any publicly owned right-of-way of a highway, street, road, sidewalk, curb or shoulder that is used for travel in any ordinary mode, including pedestrian travel. The director may waive this requirement upon request from the municipal provider or individual user if a waiver of this requirement is in the public interest. This requirement does not apply to any portion of a residential lot that extends into a publicly owned right-of-way.*

B. Responsibility for Compliance with Individual User Requirements

- 1. A municipal provider shall be responsible for compliance with an individual user requirement set forth in subsection A of this section for an existing individual user unless one of the following applies:*

- a. *The provider identified the existing individual user to the director on a form provided by the Department and received by the director no later than 90 days before the adoption of the Third Management Plan.*
 - b. *The director gave written notice of the requirement to the individual user within 30 days after the adoption of the Third Management Plan.*
2. *An existing individual user that has been given written notice of an individual user requirement by the director shall be responsible for complying with the individual user requirement beginning on the date specified in the notice.*
3. *A municipal provider shall be responsible for compliance with an individual user requirement set forth in subsection A of this section for a new individual user unless one of the following applies:*
 - a. *The municipal provider identifies the new individual user to the director on a form provided by the Department. If the provider identifies the new individual user to the director within 90 days after the provider begins serving water to the new individual user, the municipal provider shall not be responsible for complying with the individual user requirement at any time. If the provider identifies the new individual user to the director more than 90 days after the provider begins serving water to the new individual user, the provider shall be responsible for complying with the individual user requirement beginning on the date the new individual user first receives water from the provider until the end of the calendar year in which the provider identifies the individual user to the director.*
 - b. *The director has given written notice of the individual user requirement to the individual user and the individual user is responsible for complying with the requirement.*
4. *A new individual user that has been given written notice of an individual user requirement by the director shall be responsible for compliance with the individual user requirement beginning on the date specified in the notice.*

C. Notification of New Individual User by Municipal Provider

Beginning January 1, 2002, and continuing thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, a municipal provider shall notify a new individual user in writing of its individual user requirements as set forth in subsection A of this section before commencement of service of water to the individual user.

5-113. Conservation Requirements for Municipal Distribution Systems

For the calendar year 2002, or the calendar year in which the provider commences service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan:

1. *A large municipal provider shall not operate a municipal distribution system, other than an untreated water municipal distribution system, in a manner such that lost and unaccounted for water exceeds 10 percent of the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by the large municipal provider on an annual or three-year average basis.*

2. *A small municipal provider shall not operate its municipal distribution system, other than an untreated water municipal distribution system, in a manner such that lost and unaccounted for water exceeds 15 percent of the total quantity of water from any source, except direct use effluent, withdrawn, diverted or received by the small municipal provider on an annual or three-year average basis.*
3. *Beginning January 1, 2002, and continuing thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan, a large untreated water provider that operates an untreated water municipal distribution system shall either:*
 - a. *Line all canals within its service area that are used to deliver untreated water to its delivery points with a material that allows no more lost water than a well-maintained concrete lining, and maintain such lining to minimize its lost and unaccounted for water; or*
 - b. *Operate and maintain its untreated water municipal distribution system in a manner such that lost and unaccounted for water does not exceed 10 percent of the total quantity of untreated water from any source withdrawn, diverted or received by the provider on an annual or three-year average basis.*

5-114. Monitoring and Reporting Requirements for Municipal Providers and Individual Users

For the calendar year 2002, or for the calendar year in which the municipal provider commences service of water, whichever is later, and for each calendar year thereafter until the first compliance date for any substitute requirement in the Fourth Management Plan:

1. *A large municipal provider shall separately measure and report in its annual reports required by A.R.S. §§ 45-468 and 45-632, the total quantity of water from any source, including effluent, delivered each month for: a) irrigation uses; b) residential uses by category, including single family and multifamily; and c) non-residential uses by category, including turf-related facility uses, commercial uses, industrial uses, government uses, construction uses, and other uses.*
2. *A municipal provider shall report the following in its annual report required by A.R.S. § 45-632:*
 - a. *The total quantity of water from any source, disaggregated by each source, withdrawn, diverted or received by the provider for non-irrigation use during the reporting year, as separately measured with a measuring device in accordance with paragraph 7 of this subsection.*
 - b. *The total quantity of water from any source, including effluent, withdrawn, diverted or received by the provider for irrigation use during the reporting year.*
 - c. *The total quantity of effluent disaggregated by direct use effluent, effluent recovered within the area of impact, and effluent recovered from outside the area of impact, served by the provider during the reporting year for non-irrigation use.*
 - d. *The number of single family housing units added to the provider's service area from July 1 of the previous calendar year to July 1 of the reporting year.*

- e. *The number of multifamily housing units added to the provider's service area from July 1 of the previous calendar year to July 1 of the reporting year.*
 - f. *The total number of single family housing units and multifamily housing units served by the provider as of July 1, 2000.*
 - g. *The number of single family housing units and the number of multifamily housing units added to the provider's service area between July 1, 2000 and July 1 of the reporting year.*
 - h. *The provider's total quantity of lost and unaccounted for water during the calendar year.*
 - i. *The percentage of the total quantity of water from any source, except direct use effluent or effluent recovered within the area of impact withdrawn, diverted or received by the provider during the calendar year that is lost and unaccounted for water.*
3. *In addition to the information required by paragraphs 1 and 2 of this section, a large municipal provider regulated under the Non-Per Capita Conservation Program described in section 5-104 shall include the following in its annual report required by A.R.S. § 45-632:*
- a. *The information listed in the monitoring and reporting requirement sections of those RCMs set forth in Appendix 5F that the provider agrees in writing to implement pursuant to section 5-104, subsection E, paragraph 1.*
 - b. *If the provider applied for the Non-Per Capita Conservation Program under section 5-104, subsection A, paragraph 4, the information required to be submitted by the provider under the AWS Rules adopted by the director pursuant to A.R.S. § 45-576.*
 - c. *Any other information required by the director in order to determine the provider's compliance with the Non-Per Capita Conservation Program.*
4. *In addition to the information required by paragraphs 1 and 2 of this section, a large municipal provider regulated under the Alternative Conservation Program described in section 5-105 shall include in its annual report required by A.R.S. § 45-632:*
- a. *a status report describing progress in implementing the provider's programs proposed in its application, specifically including the provider's proposed conservation plan.*
 - b. *The information listed in the monitoring and reporting requirement sections of those RCMs set forth in Appendix 5I.1 and 5I.3 that the provider agrees in writing to implement pursuant to section 5-105, subsection C, paragraph 3.*
5. *In addition to the information required by paragraphs 1 and 2 of this section, a large untreated water provider shall report in its annual report required by A.R.S. § 45-632:*
- a. *The total quantity of untreated water by source, withdrawn, diverted or received by the provider during the reporting year, as separately measured with a measuring device in accordance with paragraph 7 of this section.*

- b. *The number of gross acres to which the provider delivered water during the year, not including those acres regulated as a turf-related facility.*
 - c. *A map of the provider's service area shall be submitted with the annual report disaggregating the gross acres and the distribution system.*
 - d. *The provider's total quantity of lost and unaccounted for water during the calendar year.*
 - e. *The percentage of the total quantity of untreated water withdrawn, diverted or received by the provider during the calendar year that is lost and unaccounted for water.*
- 6. *A large municipal provider shall meter water deliveries to all service connections on its municipal distribution system, except connections to fire services, dwelling units in individual multifamily units, mobile homes in a mobile home park with a master meter, and construction users.*
 - 7. *A municipal provider shall make all water use measurements using measuring devices in accordance with the Department's measuring device rules, R12-15-901, et seq., Arizona Administrative Code.*
 - 8. *An individual user shall meet the monitoring and reporting requirements prescribed in the Industrial Chapter, if applicable, as though the individual user were an industrial user.*

5-115. Remediated Groundwater Accounting for Conservation Requirements

A. Accounting

Groundwater withdrawn pursuant to an approved remedial action project under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or Title 49, Arizona Revised Statutes, and used by a person subject to a conservation requirement established under this chapter, shall be accounted for consistent with the accounting for surface water for purposes of determining the person's compliance with the conservation requirement, subject to the provisions of subsections B through D of this section.

B. Amount of Groundwater Eligible for Accounting

For each approved remedial action project, the annual amount of groundwater that is eligible for the remediated groundwater accounting provided in subsection A of this section is the project's annual authorized volume. The annual authorized volume for a remedial action project approved on or after June 15, 1999 is the maximum annual volume of groundwater that may be withdrawn pursuant to the project, as specified in a consent decree or other document approved by the United States Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ). The annual authorized volume for a project approved prior to June 15, 1999 is the highest annual use of groundwater withdrawn pursuant to the project prior to January 1, 1999, except that if a consent decree or other document approved by the EPA or ADEQ specifies the maximum annual volume of groundwater that may be withdrawn pursuant to the project, the project's annual authorized volume is the maximum annual volume of groundwater specified in that document. The director may modify the annual authorized volume for a remedial action project as follows:

1. *For an approved remedial action project associated with a treatment plant that was in operation prior to June 15, 1999, a person may request an increase in the annual authorized volume at the same time the notice is submitted pursuant to subsection C of this section. The director shall increase the annual authorized volume up to the maximum treatment capacity of the treatment plant if adequate documentation is submitted to the director demonstrating that an increase is necessary to further the purpose of the remedial action project and the increase is not in violation of the consent decree or other document approved by the EPA or ADEQ.*
2. *A person may request an increase in the annual authorized volume of an approved remedial action project at any time if it is necessary to withdraw groundwater in excess of the annual authorized volume to further the purpose of the project. The director shall increase the annual authorized volume up to the maximum volume needed to further the purpose of the project if adequate documentation justifying the increase is submitted to the director and the increase is not in violation of the consent decree or other document approved by the EPA or ADEQ.*
3. *The director shall modify the annual authorized volume of an approved remedial action project to conform to any change in the consent decree or other document approved by the EPA or ADEQ if the person desiring the modification gives the director written notice of the change within thirty days after the change. The notice shall include a copy of the legally binding agreement changing the consent decree or other document approved by the EPA or ADEQ.*

C. Notification

To qualify for the remediated groundwater accounting provided in subsection A of this section, the person desiring the accounting must notify the director in writing of the anticipated withdrawal of groundwater pursuant to an approved remedial action project under CERCLA or Title 49, Arizona Revised Statutes, prior to the withdrawal. A municipal provider may submit notice on behalf of an individual user. At the time the notice is given, the person desiring the accounting must be using remediated groundwater pursuant to the approved remedial action project or must have agreed to do so through a consent decree or other document approved by the EPA or ADEQ. The notice required by this subsection shall include all of the following:

1. *A copy of a document approved by ADEQ or the EPA, such as the Remedial Action Plan (RAP), Record of Decision (ROD) or consent decree, authorizing the remediated groundwater project. Unless expressly specified in the document, the person shall include in the notice the volume of groundwater that will be pumped annually pursuant to the project, the time period to which the document applies, and the annual authorized volume of groundwater that may be withdrawn pursuant to the project.*
2. *The purpose for which the remediated groundwater will be used.*
3. *The name and telephone number of a contact person.*
4. *Any other information required by the director.*

D. Monitoring and Reporting Requirements

To qualify for the remediated groundwater accounting for conservation requirements as provided in subsection A of this section, groundwater withdrawn pursuant to the approved remedial action project must be metered separately from groundwater withdrawn in association with another groundwater withdrawal authority for the same or other end use. A person desiring the remediated groundwater accounting for conservation requirements shall indicate in its annual report under A.R.S. § 45-632 the volume of water withdrawn and used during the previous calendar year that qualifies for the accounting.

**APPENDIX 5A
MUNICIPAL PROVIDERS
PINAL ACTIVE MANAGEMENT AREA**

Provider	Number	Large Provider	Institutional Provider	Large Untreated Provider	Small Provider	Status
Anderson Brothers Farm Water	56-1303				X	Private Water Company
Arizona State Prison - Florence	56-1304		X			Institutional Provider
Arizona State Prison - Picacho	56-1346				X	Institutional Facility
Arizona Training Program at Coolidge	56-1305				X	Institutional Facility
Arizona Water Co. - Casa Grande	56-1307	X				Private Water Company
Arizona Water Co. - Coolidge	56-1308	X				Private Water Company
Arizona Water Co. - Stanfield	56-1309				X	Private Water Company
Arizona Water Co. - Tierra Grande	56-1310				X	Private Water Company
Casa Grande West Water Company	56-1312				X	Private Water Company
Central Arizona College	56-1314				X	Institutional Facility
City of Eloy	56-1203	X				Municipality
CP Water Company	56-1316				X	Private Water Company
Evergreen Irrigation District	56-1348			X		Irrigation District
Francisco Grande Utility Company	56-1349		X			Institutional Provider
Golden Corridor Water Company	56-1319				X	Private Water Company
Maricopa Domestic Water	56-1327				X	Private Water Company
Mohawk Water Company	56-1328				X	Private Water Company
Out West Mobile Village	56-1325				X	Private Water Company
Papago Butte Water Delivery Company	56-1329				X	Private Water Company

APPENDIX 5A (continued)
MUNICIPAL PROVIDERS
PINAL ACTIVE MANAGEMENT AREA

Provider	Number	Large Provider	Institutional Provider	Large Untreated Provider	Small Provider	Status
Park Water Company	56-1311				X	Private Water Company
Picacho Water Improvement District	56-1331				X	Private Water Company
Pinal County Housing	56-1332				X	Private Water Company
Pinal Water Company	56-1345				X	Private Water Company
San Carlos IDD	57-1104			X		Irrigation District
Signal Peak Water Company	56-1336				X	Private Water Company
Silverbell IDD	56-1105				X	Private Water Company
South Mountain Water Company	56-1347				X	Private Water Company
Thunderbird Farms Water Improvement District	56-1342				X	Private Water Company
Town of Florence	56-1204	X				Municipality
Town of Florence - North	56-1318				X	Municipality
United Utilities - Palo Verde	56-1343				X	Private Water Company

APPENDIX 5B.1
COMPONENT GPCD CALCULATION DESCRIPTION
TOTAL GPCD PROGRAM
PINAL ACTIVE MANAGEMENT AREA

A. Residential:

1. Existing Single Family and Multifamily Allotment
 - a. Determine Base Year 2000 Population, including single family and multifamily housing units.
 - b. Multiply Base Year 2000 Residential Population by the Existing Residential SF/MF GPCD Target (Table 5 -103.A of the municipal conservation requirements.)
 - c. Multiply the result of 1.b above by the number of days in the year.
 - d. Result is a volumetric allotment, in acre-feet, for existing residential users with expected GPCD reductions included in the annual target calculation.
2. New Single Family and Multifamily Allotment:
 - a. Determine:
New Single Family Housing Units added since June 30, 2000
New Single Family Population (post - 2000) for the calendar year
New Multifamily Housing Units added since June 30, 2000
New Multifamily Population (post - 2000) for the calendar year
 - b. Multiply New Single Family Housing Units and New Multifamily Housing Units by Exterior model GPHUD Rates for New Development and the number of days in the year:
Single Family = 149 GPHUD
Multifamily = 77 GPHUD
 - c. Multiply the sum of the New Single Family Population and the New Multifamily Population by the Interior model GPCD rate of 57 for new residential development and the number of days in a year.
3. Add together the Existing Single Family and Multifamily Allotment to the New Single Family and Multifamily Allotment to calculate the RESIDENTIAL ALLOTMENT.

B. Non-Residential:

1. Multiply the Total Population for the calendar year by the Non-Residential GPCD Requirement from Table 103.A of the municipal conservation requirements.
2. The result is the volumetric allotment, in acre-feet, for non-residential uses each calendar year.

C. Lost and Unaccounted For Water:

1. Subtract the calendar year total residential, non-residential, and system-related deliveries from the calendar year Total Water Use to obtain the Lost Water Volume.
2. Divide the Lost Water Volume by the Total Water Use for the calendar year, and multiply the result by 100.
- 3a. If the product is **less than** 10 percent, the Lost Water Volume is the volumetric allotment, in acre-feet, for lost and unaccounted for the calendar year.
- 3b. If the product is **greater than** 10 percent, multiply the Total Water Use for the calendar year by 10 percent. The result is the volumetric allotment, in acre-feet, for lost and unaccounted for water for the calendar year.

- D. Add the results of A, B, and C to determine the total volumetric allotment, divide by the Total Population for the calendar year and the number of days in the year to obtain the Total Gallons Per Capita Per Day requirement.**

APPENDIX 5B.2
COMPONENT GPCD CALCULATION
EXAMPLE CALCULATION
PINAL ACTIVE MANAGEMENT AREA

Example: The existing population is comprised of the residents served in calendar year 2000. The new population is comprised of those residents added in 2001 and after (i.e., for calendar year 2002, the new population would be the 2001 population plus those added in 2002).

1) EXISTING HOUSING UNITS/POPULATION

a. Existing (2000) SF Housing Units	=	23,089
b. Existing (2000) MF Housing Units	=	4,132
c. TOTAL EXISTING RESIDENTIAL HOUSING UNITS	=	27,221
d. Existing (2000) SF Population	=	72,554
e. Existing (2000) MF Population	=	8,785
f. TOTAL EXISTING RESIDENTIAL POPULATION	=	81,339

2) NEW HOUSING UNITS/POPULATION

a. New SF Housing Units Added since June 30, 2000	=	7,717
b. New MF Housing Units Added since June 30, 2000	=	1,381
c. TOTAL NEW RESIDENTIAL HOUSING UNITS	=	9,098
d. New SF Population Added since June 30, 2000	=	24,258
e. New MF Population Added since June 30, 2000	=	2,937
f. TOTAL NEW RESIDENTIAL POPULATION	=	27,195

3) COMPONENT RATES:

a. Existing Residential GPCD Component	=	132 ⁽¹⁾
b. New Residential SF Interior GPCD Component	=	57 ⁽²⁾
c. New Residential MF Interior GPCD Component	=	57 ⁽²⁾
d. New Residential SF Exterior GPHUD Component	=	149 ⁽²⁾
e. New Residential MF Exterior GPHUD Component	=	77 ⁽²⁾
f. Non-Residential GPCD Component	=	53 ⁽³⁾

4) COMPONENT ALLOTMENTS IN ACRE-FEET:

a. Existing Residential Component = 81,339 pop x 132 GPCD x 365/325851	=	12,026 AF/YR
b. New SF Interior Component = 24,258 pop x 57 GPCD x 365/325851	=	1,549 AF/YR
c. New MF Interior Component = 2,937 pop x 57 GPCD x 365/325851	=	187 AF/YR
d. New SF Exterior Component = 7,717 hu x 149 GPHUD x 365/325851	=	1,124 AF/YR
e. New MF Exterior Component = 1,381 hu x 77 GPHUD x 365/325851	=	119 AF/YR
f. RESIDENTIAL ALLOTMENT	=	15,005 AF/YR
g. Non-Residential Component = 108,534 pop x 53 GPCD x 365/325851	=	6,443 AF/YR
h. NON-RESIDENTIAL ALLOTMENT	=	6,443 AF/YR
i. Lost/Unaccounted Water Component ≤ 10 percent of total annual use	=	2,196 ⁽⁴⁾ AF
j. LOST/UNACCOUNTED FOR ALLOTMENT	=	2,196 AF
k. TOTAL ALLOTMENT = Res. Component + Non-Res Component + L/U	=	23,644 AF

- (1) The existing GPCD components are listed in Table 5-103.A of the municipal conservation requirements for each large provider. The number given here is for example purposes.
- (2) The New Single Family and Multifamily interior GPCD and exterior GPHUD components are based on the Draft Proposed Requirements for the Pinal AMA.
- (3) Non-Residential GPCD components will remain constant from the SMP Final Non-Residential GPCD components Requirements and are listed in Appendix 5E.1.
- (4) Lost Water Component will vary each year depending on Total Water Use. Cannot exceed 10 percent of Total Use.

APPENDIX 5C
AVERAGE WATER USE, 1992-1995
PINAL ACTIVE MANAGEMENT AREA

Large Municipal Provider	Residential (AF)		Non-Residential (AF)
	Single Family	Multifamily	
AWC -- Casa Grande	3,310	811	3,195
AWC -- Coolidge	789	187	275
City of Eloy	748	145	541
Town of Florence	421	72	326

APPENDIX 5D.1
EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
SINGLE FAMILY HOUSING UNITS
PINAL ACTIVE MANAGEMENT AREA

SWIMMING POOLS

Average Water Consumption

- a. Evaporation¹
 - a. Average January 1987 - December 1997 Reference Evapotranspiration (ET_o) = 78.74 in/yr.
 - b. Average January 1987 - December 1997 Rainfall = 7.84 in/yr.
 - c. Average pool size = 400 ft².
 - d. Calculation²:

78.74 in/yr ET _o - 7.84 in/yr rainfall	= 70.90 in/yr
70.90 in/yr / 12 in/ft.	= 5.91 ft/yr
400 ft ² pool * 5.91 ft/yr * 7.48 gal/ft ³	= 17,663 gal/yr
- b. Backwash³
 - a. Recommended backwash 2 to 4 minutes 23 times per year at 75 to 80 gallons per minute.
 - b. Calculation²:

2 minutes * 75 gpm * 23 times / yr.	= 3,450 gal/yr
-------------------------------------	-----------------------
- c. Initial Fill
 - a. Average Pool Size = 400 ft² of surface area by 5 ft. depth.
 - b. Fill averaged over the 10 year management period.
 - c. Calculation²:

400 ft ² * 5 ft * 7.48 gal / ft ³ / 10 years	= 1,496 gal/p/yr
--	-------------------------
- d. Maintenance Refill³
 - a. Average Pool Size = 400 ft² of surface area by 5 ft. depth.
 - b. Allow for complete refill once every 10 years - ADWR assumption.
 - c. Calculation²:

400 ft ² * 5 ft. * 7.48 gal / ft ³	= 14,960 gal/p/yr
14,960 gal/pool/yr / 10 years	= 1,496 gal/yr
- e. Pool Cover Savings¹
 - a. Average Area = 400 ft².
 - b. Average Oct. - April ET_o = 32.47 in/yr. Average Oct. Apr. rain = 5.47 in/yr.
 - c. Cover installation rate = 59.22%.
 - d. Calculation²:

(32.47 in/yr - 5.47 in/yr) / 12 in/ft.	= 2.25 ft./yr
400 ft ² * 2 ft * 7.48 gal / ft ³	= (6,740)gal/p/yr
6,740 gal/p/yr * 59.22%	= (3,991)gal/p/yr
- f. TOTAL ANNUAL DEMAND FOR NEW POOLS
 - a. Calculation²:

Evaporation	= 17,663 gal/yr
Backwash	= 3,450 gal/yr
Initial Fill	= 1,496 gal/yr
Maintenance/Refill	= 1,496 gal/yr
Pool Cover Savings	= <u>(3,991)gal/yr</u>
TOTAL	= 20,114 gal/yr

¹ ET_o and rainfall data from Arizona Meteorological Network, Coolidge and Eloy Stations (www.ag.arizona.edu/AZMET).

² Numbers may not add up due to rounding.

³ Data from National Spa & Pool Institute, ADWR Phoenix AMA telephone interview, December 1995.

APPENDIX 5D.1 (continued)
EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
SINGLE FAMILY HOUSING UNITS
PINAL ACTIVE MANAGEMENT AREA

SWIMMING POOLS

- g. Installation Rates¹
a. Calculation:

SWIMMING POOL INSTALLATION
PINAL ACTIVE MANAGEMENT AREA

Year	Annual # Pools Installed	Annual Housing Unit Starts	% of Total New Housing Units with a Pool
1994	21	106	19.8%
1995	27	109	24.8%
1996	27	139	19.4%
1997	30	96	31.3%
1998 (through 7/98)	23	96	24.0%
Average	28.9	122.9	23.44%

Total Annual Pool Demand = 20,114 gal/yr * 23.44%

= 4,715 gal/yr

- h. **DEMAND PER HOUSING UNIT PER DAY**

a. 4,715 gal/yr / 365 days

= 12.92 GPHUD

¹

Installation data from City of Casa Grande, Building Inspector's Office, Housing & Pool permits, 1994 - 1998.

APPENDIX 5D.2
EXTERIOR WATER USE MODEL FOR NEW RESIDENTIAL DEVELOPMENT
SINGLE FAMILY HOUSING UNITS
PINAL ACTIVE MANAGEMENT AREA

EVAPORATIVE COOLING

Average Water Consumption¹

1. Average Annual Demand²

a. Coolers with Bleed-Off Systems

2,906 cooling hour per season @ 8 gal/hour = 23,462 gal/yr

59.02% utilize bleed-off * 23,462 gal = 13,846 gal/yr

b. Coolers without Bleed-Off Systems

2,906 cooling hours per season @ 4 gal/hour = 11,621 gal/yr

40.98% without bleed-off * 11,621 gal = 4,763 gal/yr

c. Calculation²:

13,846 gallons + 4,763 gallons = **18,609 gal/yr**

B. Installation³

1. Because these data are for *existing* housing units, the AMA has taken the data and made the following assumptions for the occurrence of evaporative cooling in *new* housing units:

85 percent use air conditioning only

15 percent use a combination of evaporative coolers and air conditioning

0 percent use evaporative cooling only.

2. Calculation:

Of the 15 percent with evaporative cooling, assume use occurs during 66 percent of the cooling period

= 9 percent

18,609 gallons * 9 percent per year = **1,675 gal/year**

C. DEMAND PER HOUSING UNIT PER DAY

A. Calculation:

1,675 gal/yr / 365 days/yr = **4.59 GPHUD**

¹ M. Karpisak, Babcock, T., France, G., Zauderer, J., Hopf, S. and Foster, K., "Evaporative Cooler Water Use In Phoenix, Journal American Water Works Association, Vol. 90, Issue 4 (April 1998).

² Numbers may not total due to rounding (59.016393442623% & 40.9836065573771%).

³ City of Phoenix telephone survey, 1993.

APPENDIX 5D.3
EXTERIOR WATER USE MODEL FOR NEW SINGLE FAMILY DEVELOPMENT
PINAL ACTIVE MANAGEMENT AREA

LANDSCAPING
(Assumes a 7,500 square foot lot)

Average Water Consumption

A. Turf

- A. Turfed area of 750 square feet assumed as the average for all new housing units in the Pinal AMA.
- B. A turf install rate of 67% is assumed for new landscaping within the Pinal AMA.
- C. Turf application rate assumes water application at 60% of average annual reference evapotranspiration (ETo) and effective rainfall at 50% of annual average¹.
- D. Irrigation efficiency for residential sprinkler systems at 75%.
- E. *Calculation*²:
$$\begin{array}{rcl} 750 \text{ sq ft} * 3.61 \text{ af/ac} * 7.48 \text{ gal / ft}^3 & = & 20,238 \text{ gal/yr} \\ 20,238 \text{ gal/yr} / 75\% \text{ irrigation efficiency} & = & 26,984 \text{ gal/yr} \\ 26,984 * 67\% \text{ install rate} & = & \mathbf{17,989 \text{ gal/yr}} \end{array}$$

B. Trees

- A. Average number of trees from survey: 1.604 high use, .400 medium use, and 5.777 low use³.
- B. Application rates (as % annual of Pinal AMA ETo) = 58% for high use, 35.5% and 19.5% of April - Sept. Pinal AMA ETo for medium and low use trees respectively^{1,4}. Effective rain = 10%.
- C. Pinal avg. annual ETo = 78.74 in., Rain = 7.84 in., April - Sept. ETo = 54.75 in., Rain = 2.76 in.
- D. Assume 14 ft. canopy at maturity - requires 96 gal/in of ET tree⁴.
- E. Assume 70% irrigation efficiency for residential drip irrigation⁵.
- F. *Calculation*²:
$$\begin{array}{rcl} \text{High Use:} [(78.74 \text{ in/yr} * 58\%) - (7.84 \text{ in/yr} * 10\%)] * 96 \text{ gal/in} / 52 \text{ wks} & = & 83 \text{ gal/wk} \\ 83 \text{ gal/wk} * 1.6 \text{ trees} * 52 \text{ weeks} & = & 6,906 \text{ gal/yr} \\ \text{Med. Use:} [(54.75 \text{ in/yr} * 35.5\%) - (2.76 \text{ in/yr} * 10\%)] * 96 \text{ gal/in} / 52 \text{ wks} & = & 35 \text{ gal/wk} \\ 35 \text{ gal/wk} * 0.4 \text{ trees} * 52 \text{ weeks} & = & 736 \text{ gal/yr} \\ \text{Low Use:} [(54.75 \text{ in/yr} * 19.5\%) - (2.76 \text{ in/yr} * 10\%)] * 96 \text{ gal/in} / 52 \text{ wks} & = & 19 \text{ gal/wk} \\ 19 \text{ gal/wk} * 5.8 \text{ trees} * 52 \text{ weeks} & = & 5,762 \text{ gal/yr} \\ \text{TOTAL:} & = & 13,403 \text{ gal/yr} \\ 13,403 \text{ gal/yr} / 70\% \text{ irrigation efficiency} & = & \mathbf{19,148 \text{ gal/year}} \end{array}$$

C. Shrubs

- A. Average number of shrubs from survey: 1.016 high use, 12.426 medium use, and 8.857 low use³.
- B. Application rates (as % of annual Pinal AMA ETo) = 58% for high use, 35.5% and 19.5% of April - Sept. Pinal AMA ETo for medium and low use shrubs respectively^{1,4}. Effective rain = 10%.
- C. Pinal avg. annual ETo = 78.74 in., Rain = 7.84 in., April - Sept. ETo = 54.75 in., Rain = 2.76 in.
- D. Assume 4 ft. avg. canopy at maturity - requires 8 gal/in. of ET shrub⁴.
- E. Assume 70% irrigation efficiency for residential drip irrigation⁵.
- F. *Calculation*²:
$$\begin{array}{rcl} \text{High Use:} [(78.74 \text{ in/yr} * 58\%) - (7.84 \text{ in/yr} * 10\%)] * 8 \text{ gal/in} / 52 \text{ weeks} & = & 7 \text{ gal/wk} \\ 7 \text{ gal/wk} * 1.0 \text{ shrubs} * 52 \text{ weeks} & = & 365 \text{ gal/yr} \\ \text{Med. Use:} [(78.74 \text{ in/yr} * 35.5\%) - (7.84 \text{ in/yr} * 10\%)] * 8 \text{ gal/in} / 52 \text{ weeks} & = & 4 \text{ gal/wk} \\ 4 \text{ gal/wk} * 12.4 \text{ shrubs} * 52 \text{ weeks} & = & 2,623 \text{ gal/yr} \\ \text{Low Use:} [(78.74 \text{ in/yr} * 19.5\%) - (7.84 \text{ in/yr} * 10\%)] * 8 \text{ gal/in} / 52 \text{ weeks} & = & 2 \text{ gal/wk} \\ 2 \text{ gal/wk} * 8.9 \text{ shrubs} * 52 \text{ weeks} & = & 931 \text{ gal/yr} \\ \text{TOTAL:} & = & 3,919 \text{ gal/yr} \\ 3,919 \text{ gal/yr} / 70\% \text{ irrigation efficiency} & = & \mathbf{5,598 \text{ gal/year}} \end{array}$$

¹ ETo and rainfall data from Arizona Meteorological Network, Coolidge and Eloy Stations (www.ag.arizona.edu/AZMET).

² Numbers may not add up due to rounding.

³ Craft, Marti, data from exterior water use survey of single family residential housing built 1992-1996, Tucson Water and Metro Water District service areas, for ADWR, 1997.

⁴ Pima County Cooperative Extension Service, Low4 Program, Landscape Water Conservation Workshop materials: "How to Develop a Drip Irrigation Schedule" and "Plant Water Requirements, Tucson Arizona," unpublished.

⁵ Irrigational Efficiency from Landscape Water Management Principles, Irrigation Training and Research Center, California Polytechnic State University, San Luis Obispo, California, undated.

APPENDIX 5D.3 (continued)
EXTERIOR WATER USE MODEL FOR NEW SINGLE FAMILY DEVELOPMENT
PINAL ACTIVE MANAGEMENT AREA

LANDSCAPING
(Assumes a 7,500 square foot lot)

D. Additional Landscaped Area

- A. Water application based on 19.5% of average annual reference ETo and effective rainfall at 10% of annual average¹.
- B. Assume 500 square foot area.
- C. Assume 70 % irrigation efficiency for residential drip irrigation².
- D. Assume 76.56% installation rate (only applied to housing units without pools).
- E. *Calculation:*
 - $(78.74 \text{ in / yr} * 20 \%) - (7.84 \text{ in / yr} * 10\%) / 12 \text{ in.} * 500 \text{ ft}^2 * 7.48 \text{ ft}^3 / \text{gal}$ = 4,661 gal/yr
 - 4,661 gal/yr * 70 % irrigation efficiency = 6,658 gal/yr
 - 6,658 gal/yr * 77 % installation rate = **5,098 gal/year**

E. DEMAND PER HOUSING UNIT PER DAY

- A. *Calculation:*
 - Turf = 17,989 gal/yr
 - Trees = 19,148 gal/yr
 - Shrubs = 5,598 gal/yr
 - Additional Area = 5,098 gal/yr
 - TOTAL = 47,833 gal/yr
 - 47,833 gal/yr / 365 days = **131.05 GPHUD**

¹ Pima County Cooperative Extension Service, Low4 Program, Landscape water Conservation Workshop materials: "How to Develop a Drip Irrigation Schedule" and "Plant Water Requirements Tucson, Arizona," unpublished.

² Irrigation Efficiency from Landscape Water Management Principles, Irrigation Training and Research Center, California Polytechnic State University, San Luis Obispo, California, undated.

**APPENDIX 5E.1
EXISTING RESIDENTIAL AND NON-RESIDENTIAL GPCD COMPONENTS
PINAL ACTIVE MANAGEMENT AREA**

	Existing Conservation Potential	First Intermediate GPCD Component for Existing Residential Population (2002-2004)	Second Intermediate GPCD Component for Existing Residential Population (2005-2009)	Final GPCD Component for Existing Residential Population (2010-Fourth Management Plan)	GPCD Component for Non-Residential Use
AWC - Casa Grande	Minimum	128	126	124	99
AWC - Coolidge	Minimum	105	103	101	29
Town of Florence	Minimum	121	119	117	80
City of Eloy	Minimum	107	105	103	65

**APPENDIX 5E.2
NEW SINGLE FAMILY AND MULTIFAMILY RESIDENTIAL
GPCD AND GPHUD COMPONENTS
PINAL ACTIVE MANAGEMENT AREA**

	New Single Family		New Multifamily	
	GPCD Component for New Single Family Population Interior Water Use	GPHUD Component for New Single Family Housing Unit Exterior Water Use	GPCD Component for New Multifamily Population Interior Water Use	GPHUD Component for New Multifamily Housing Unit Exterior Water Use
AWC - Casa Grande	57	149	57	77
AWC - Coolidge	57	149	57	77
Town of Florence	57	149	57	77
City of Eloy	57	149	57	77

APPENDIX 5F.1

***RESIDENTIAL INTERIOR AND EXTERIOR
STANDARD
REASONABLE CONSERVATION MEASURES***

**RESIDENTIAL INTERIOR
STANDARD RCM**

WATER AUDIT AND FIXTURE RETROFIT PROGRAM FOR EXISTING RESIDENTIAL CUSTOMERS

Description: Water provider staff or hired consultants visit residences, or resident performs self-audit, to examine water use practices, detect leaks, make recommendations for improved efficiency and install retrofit devices. Water use reduction from installation of devices depends on the life of the device, for example toilet flapper normally last about five years.

Implementation Levels: Minimum Conservation Potential: The provider shall notify all existing residential customers of the availability of a self-audit and retrofit kit. The provider shall distribute a kit to all customers who request one. Moderate Conservation Potential: The provider shall perform minimum level requirement, plus a minimum of 10 percent of all pre-1980 housing units shall be audited and retrofitted, free of charge to the customer, by January 1, 2010 either by the homeowner or by a trained auditor. Maximum Conservation Potential: The provider shall perform minimum level requirement, plus a minimum of 20 percent of all pre-1980 housing units shall be audited and retrofitted, free of charge to the customer, by January 1, 2010 either by the homeowner or by a trained auditor.

The self-audit and retrofit kit shall include, at a minimum, toilet leak detection dye tabs, instructions on measuring flow from fixtures, leak repair and fixture replacement instructions, advice on behavioral changes to save water, a toilet conservation device, a low flow showerhead and faucet aerators. The audit shall include measurement of flow rates from plumbing fixtures and a check for leaks.

The housing units audited or retrofitted to meet this requirement shall not include any housing unit that was audited or retrofitted prior to acceptance into this program for the third management period unless the water use of the housing unit is inefficient.

Monitoring and Reporting Requirements: The Annual Report required by A.R.S. § 45-632 shall include a report containing information as agreed to at the time of acceptance into the Non-Per Capita Conservation Program sufficient to assess program effectiveness, including information on the method(s) used to contact customers, the annual number of audits and retrofits performed and self-audit kits sent out, and an estimate of the number and volume of leaks found and repaired.

**RESIDENTIAL INTERIOR
STANDARD RCM**

ORDINANCE OR CONDITION OF NEW SERVICE PROHIBITING INSTALLATION OR REPLACEMENT OF PLUMBING FIXTURES IN RESIDENTIAL HOUSING UNITS UNLESS FIXTURES MEET WATER SAVING STANDARDS

Description: *The provider adopts an ordinance or establishes conditions of new service prohibiting the installation of plumbing fixtures in new residential housing units and the replacement of plumbing fixtures in existing residential housing units unless the fixtures meet water efficiency standards.*

Plumbing fixtures that are to be covered and their respective maximum use rates are as follows:

- *Faucets-kitchen and lavatory* 3.0 gpm
- *Replacement aerators - kitchen and lavatory* 3.0 gpm
- *Metering faucets* .25 gpc
- *Toilets* 1.6 gpf
- *Showerheads* 3.0 gpm
- *Evaporative cooling systems/Decorative fountains must be equipped with water recycling or reuse systems*

Waivers may be available for unusual circumstances (e.g., historic buildings or areas where sanitation or health codes may conflict).

Implementation: *The provider shall adopt and enforce a plumbing ordinance or establish conditions of new service prohibiting the installation of plumbing fixtures in new housing units and the replacement of plumbing fixtures in existing housing units unless the fixtures meet the water savings performance standards outlined in the description above. Implementation of this RCM shall include a proactive inspection and enforcement program which ensures compliance with the applicable ordinance or conditions of service.*

Monitoring/Reporting: *The annual report required by A.R.S. § 45-632 shall include a copy of the current local plumbing ordinance or sample conditions of new service agreement which meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

In addition, the provider shall include in the annual report evidence of implementation of the applicable ordinance or conditions of service by reporting the number of certificates of occupancy issued in the service area, the number of permits issued for the replacement of plumbing fixtures in existing housing units, the number of housing units inspected, the number and type of plumbing fixture violations and any enforcement action taken.

A provider that is not a city or town shall also collect and examine all inspection records for new permits issued by governmental entities for the installation of original plumbing fixtures in new housing units and the replacement of plumbing fixtures in existing housing units within the provider's service area and report any plumbing code or plumbing ordinance violations that have not been enforced to the governing body of the entity charged with enforcing the code or ordinance.

Note: This documentation will be used to evaluate the effectiveness of the RCM. It will not be used to require any modification of the negotiated non-per capita conservation program agreement.

**RESIDENTIAL EXTERIOR
STANDARD RCM**

AUDIT PROGRAM FOR EXISTING RESIDENTIAL CUSTOMERS

Description: Trained auditors visit residences to examine outdoor water use practices, or materials are supplied for a self-audit of outdoor water use practices. Areas of emphasis are irrigation scheduling advice, sprinkler and drip systems inspection, evaporative cooler inspection, information on improving water retaining capacity of the soil, information on Xeriscape™ concepts and swimming pool maintenance and evaporation control (i.e., pool covers). This program shall be designed to target those customers with the greatest conservation potential.

Implementation Levels: Minimum Conservation Potential: The provider shall notify all existing residential customers of the availability of an exterior water use self-audit packet. The packet shall include at a minimum information on checking irrigation systems for efficiency and leaks, information on checking evaporative coolers for efficiency and leaks, irrigation schedules, and information on Xeriscape™. The provider shall distribute a packet to all customers who request one. Moderate Conservation Potential: The provider shall implement the minimum level program plus 5 percent of total housing units in existence when the provider is accepted into this program shall be audited either by the homeowner or a trained auditor free of charge to the customer. Audits shall be completed by January 1, 2010. Maximum Conservation Potential: The provider shall implement the minimum level program plus 10 percent of total housing units in existence when the provider is accepted into this program shall be audited either by the homeowner or a trained auditor free of charge to the customer. The audits shall be completed by January 1, 2010.

For both the moderate and maximum levels of implementation, the ratio of audited multifamily housing units to audited single family housing units shall be no greater than the ratio of total multifamily housing units to total single family housing units in the entire service area.

The housing units audited to meet this requirement shall not include any housing unit that was audited prior to acceptance into this program for the third management period unless the water use of the housing unit is ineffective.

Monitoring and Reporting Requirements: The Annual Report required by A.R.S. § 45-632 shall include a report on the number of housing units audited, plus a follow-up survey of a statistically significant sample of those audited, as agreed to by the director, to determine if audited customers have implemented any changes in exterior use habits, irrigation system, or landscaping.

**RESIDENTIAL EXTERIOR
STANDARD RCM**

LANDSCAPE WATERING ADVICE PROGRAM FOR EXISTING AND NEW RESIDENTIAL CUSTOMERS

Description: Landscape watering advice helps existing and new homeowners to irrigate efficiently. The components of a landscape watering advice program may include guidelines for irrigation scheduling based on time of day or season and dissemination of weather-based watering information (e.g. ET rate based on solar radiation, temperature, rainfall and relative humidity). Programs which encourage watering only every other day and only at certain times of day have also been shown to save water.

Implementation Levels: *Minimum Conservation Potential:* The provider shall notify all existing and new residential customers of the availability of information from the provider regarding the general benefits of efficient landscape watering including water and cost savings. This notification shall be through water bill inserts printed directly on bills in a prominent manner, or some other mechanism approved by the director. *The provider shall distribute the landscape watering information to all customers who request it. Moderate Conservation Potential:* The provider shall mail the landscape watering information to all existing and new residential customers or make it available to the customers at local distribution centers such as schools, libraries, plant nurseries, or model homes and notify all residential customers of the location of the information. *Maximum Conservation Potential:* The provider shall implement the moderate level programs plus hold workshops on landscape irrigation and/or have a landscape advisor available for telephone advice to customers and/or develop a conservation goal-billing program designed to assist residential customers determine the requirements for landscape water use. The provider shall hold at least one workshop annually for every 100,000 persons in the provider's service area. If there are less than 100,000 persons, the provider shall hold one workshop annually. If the telephone advice option is chosen, the provider shall publicize the telephone number at least once quarterly.

Monitoring and Reporting Requirements: The Annual Report required by A.R.S. § 45-632 shall include a report on the methods used to contact customers, the number of pamphlets/brochures distributed, the number of workshops conducted, and the number of phone calls taken to give landscape irrigation advice.

**RESIDENTIAL EXTERIOR
STANDARD RCM**

**ORDINANCE OR CONDITIONS OF NEW SERVICE FOR MODEL HOMES IN NEW
RESIDENTIAL DEVELOPMENTS**

Description: *Model homes in new developments are required to use low water use landscaping in front yards to set the tone for landscaping by homeowners. This measure helps to educate home buyers about the possibilities of appropriate landscaping for the area. Provision of information on low water use landscaping and/or landscape packages offered to new home buyers reinforces the message.*

Implementation: *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that new model homes meet water efficient standards. These include limitation of water-intensive landscaping to 20 percent of landscapable area, location of such landscaping where it is functionally useful, use of low water use plants from the Department's Drought Tolerant/Low Water Use Plant List (Appendix 5I) in the remaining area, and use of efficient irrigation systems in all areas. Information on low water use landscaping and/or landscape packages with low water use landscaping shall be made available and displayed in a prominent manner at the model home site. For purposes of this RCM, the term "water-intensive landscaped area" means an area of land that is watered with a permanent water application system and planted primarily with plants not listed in Appendix 5I (Drought Tolerant/Low Water Use Plant List), or any modifications to the list, and the total surface area of all water features (including swimming pools of any size, fountains, ponds, water courses, waterfalls, and other artificial water structures) filled or refilled with water from any source.*

Monitoring and Reporting Requirements: *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement. Each calendar year the provider shall submit a report on the number and location of model homes built during the reporting year.*

In addition to the annual reporting requirements, the provider shall maintain and submit to the Department upon request a copy of the landscape packages or landscape information provided by each developer to new home buyers.

**RESIDENTIAL EXTERIOR
STANDARD RCM**

PROHIBIT THE CREATION OF COVENANTS, CONDITIONS AND RESTRICTIONS WHICH REQUIRE THE USE OF WATER-INTENSIVE LANDSCAPING OR WHICH PROHIBIT THE USE OF LOW WATER USE LANDSCAPING IN NEW RESIDENTIAL DEVELOPMENTS

Description: In an effort to promote and facilitate installation of water conserving landscaping, the provider refuses to serve water to new subdivisions which have covenants, conditions and restrictions which require the use of water-intensive landscaping or prohibit low water use landscaping. This would not prohibit water-intensive landscaping, but would allow homeowners to install the landscaping of their choice.

Implementation: The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that developers of new subdivisions neither forbid low water use landscaping nor require water-intensive landscaping through covenants, conditions and restrictions.

Monitoring and Reporting Requirements: The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.

**RESIDENTIAL EXTERIOR
STANDARD RCM CHOICE (1 OF 3)**

**ORDINANCE OR CONDITIONS OF NEW SERVICE LIMITING USE OF TURF AND OTHER
WATER-INTENSIVE LANDSCAPING IN NEW MULTIFAMILY DEVELOPMENTS**

Description: *The provider adopts an ordinance or establishes conditions of new service which limits and sets criteria for water-intensive landscaping in multifamily developments.*

Implementation: *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that new multifamily developments meet water conserving landscaping standards, including limitation of water-intensive landscaping to individual patio areas and those areas used for active recreational purposes, and prohibiting water-intensive landscaping in all other areas, including common areas not used for active recreational purposes. In addition, the ordinance or conditions of new service shall require the use of efficient irrigation systems. **This RCM can be chosen only by providers with significant conservation potential in the new multifamily sector.***

Monitoring and Reporting Requirements: *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

**RESIDENTIAL EXTERIOR
STANDARD RCM CHOICE (2 OF 3)**

ORDINANCE OR CONDITION OF NEW SERVICE LIMITING USE OF TURF AND OTHER WATER-INTENSIVE LANDSCAPING IN COMMON AREAS OF NEW SINGLE FAMILY AND MULTIFAMILY DEVELOPMENTS

Description: *The provider adopts an ordinance or establishes conditions of new service which limits turf and other water-intensive landscaping within common areas of new single family and multifamily developments.*

Implementation: *The provider shall adopt and enforce an ordinance or establish conditions of new service requiring that water-intensive landscaping within all common areas of new housing developments not exceed 10 percent of the total landscapable area of the common area. Those areas used for active recreational purposes shall not be included in calculating the common area.*

Monitoring and Reporting Requirements: *The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.*

**RESIDENTIAL EXTERIOR
STANDARD RCM CHOICE (3 OF 3)**

REBATE PROGRAM FOR NEW RESIDENTIAL CUSTOMERS

Description: A rebate is offered for new landscapes that are designed to be efficient in water use. The landscapes may be required to meet pre-established design, plant selection, installation and maintenance standards.

Implementation: The provider shall offer all new residential customers a rebate for installing low water use landscaping. The rebate shall be in the form of cash, a reduction in water bills, or a waiver or rebate of the development (hookup) fee.

Monitoring and Reporting Requirements: The Annual Report required by A.R.S. § 45-632 shall include the number of rebates given, the amount of money distributed to participating customers and an estimate of water savings for the reporting year.

APPENDIX 5F.2

***NON-RESIDENTIAL INTERIOR AND EXTERIOR
STANDARD
REASONABLE CONSERVATION MEASURES***

**NON-RESIDENTIAL INTERIOR
STANDARD RCM**

INTERIOR AUDIT PROGRAM FOR EXISTING FACILITIES

Description: The provider offers audits conducted by trained personnel or instructions for a self-audit to existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way). These audits will be designed to include personal sanitation, cooling, and process water use as applicable for each facility. Audits for personal sanitation include visual leak detection, water budget analysis, recommendations for improved water use efficiency, staff education, and a retrofit analysis; cooling audits include education to determine system conductivity, maintenance practices, system operation, and design characteristics. Process water uses are audited where conservation potential exists. After the audit has been conducted, the facility compiles information into a post-audit report to be submitted to the provider. Provider staff reviews and makes recommendations to improve water usage at the facility.

Implementation: The provider shall notify all existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities and landscaped public rights-of-way) of the availability of an audit performed on-site free of charge by staff or hired consultants, or a self-audit packet which at a minimum shall include information on how to conduct a self-audit and complete a post-audit report to be returned to the provider. The provider shall evaluate each analysis and make recommendations to the facility for water conservation potential. Existing non-residential customers that collectively receive at least 20 percent of the total non-residential water use in the provider's service area (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) shall be audited either by the non-residential customer or by trained personnel. The measurement of 20 percent of non-residential use shall be based on the most current water use records available when the provider enters the program. Annual progress requirements will be negotiated between the Department and the provider with the provider required to complete all the necessary audits by January 1, 2010. **This RCM shall be implemented in conjunction with the Exterior Audit for Existing Facilities.**

Monitoring/Reporting: The Annual Report required by A.R.S. § 45-632 shall include the number of facilities audited by the provider and the number of facilities that conducted a self-audit and returned post-audit report to the provider within the reporting year. The annual report shall include the name and type of facility audited and its annual water use for the previous year. The provider shall maintain and make available for the Department's inspection the name, address, phone number, contact person, and audit report for each facility audited.

In addition to the annual reporting requirements, the provider shall collect, maintain and submit to the Department upon request information on selected facilities that utilize this program in order to allow an effective evaluation of the program. The number of records and type of data to be maintained will be determined at the time the provider enters the program. Note: This evaluation will be used to improve effectiveness of RCMs. It will not be used to require any modification of the negotiated Non-Per Capita Conservation Program agreement.

**NON-RESIDENTIAL INTERIOR
STANDARD RCM**

ORDINANCE OR CONDITION OF NEW SERVICE PROHIBITING INSTALLATION OR REPLACEMENT OF PLUMBING FIXTURES IN NON-RESIDENTIAL FACILITIES UNLESS FIXTURES MEET WATER SAVING STANDARDS

Description: Provider adopts an ordinance or establishes conditions of new service prohibiting the installation of plumbing fixtures in new non-residential facilities and the replacement of plumbing fixtures in existing non-residential facilities unless the fixtures meet water efficiency standards.

Plumbing fixtures to be covered and their respective maximum use rates are as follows:

- Faucets-kitchen and lavatory 3.0 gpm
- Replacement aerators - kitchen and lavatory 3.0 gpm
- Metering faucets .25 gpc
- Gravity tank-type and flushometer toilets 1.6 gpf
- Electromechanical hydraulic toilets 1.6 gpf
- Blowout toilets 1.6 gpf
- Showerheads 3.0 gpm
- Urinals 1.0 gpm
- (automatic, timed, and self-flushing urinals are prohibited)
- Evaporative cooling systems/Decorative fountains must be equipped with water recycling or reuse systems

Waivers may be available for unusual circumstances (e.g., hospitals and other areas where sanitation or health codes may conflict).

Implementation: The provider shall adopt and enforce a plumbing ordinance or establish conditions of new service prohibiting the installation of plumbing fixtures in new non-residential facilities and the replacement of plumbing fixtures in existing non-residential facilities unless the fixtures meet the water savings performance standards outlined in the description above. Implementation of this RCM shall include a proactive inspection and enforcement program which ensures compliance with the applicable ordinance or conditions of service.

Monitoring/Reporting: The annual report required by A.R.S. § 45-632 shall include a copy of the current local plumbing ordinance or sample conditions of new service agreement which meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.

In addition, the provider shall include in the annual report evidence of implementation of the applicable ordinance or conditions of service by reporting the number of certificates of occupancy issued in the service area, the number of permits issued for the replacement of plumbing fixtures in existing non-residential facilities, the number of non-residential facilities inspected, the number and type of plumbing fixture violations and any enforcement action taken.

A provider that is not a city or town shall also collect and examine all inspection records for new permits issued by governmental entities for the installation of original plumbing fixtures in new facilities and the replacement of plumbing fixtures in existing non-residential facilities within the provider's service area and report any plumbing code or plumbing ordinance violations that have not been enforced to the governing body of the entity charged with enforcing the code or ordinance.

Note: This documentation will be used to evaluate the effectiveness of the RCM. It will not be used to require any modification of the negotiated non-per capita conservation program agreement.

**NON-RESIDENTIAL INTERIOR
STANDARD RCM**

DISTRIBUTION OF CONSERVATION INFORMATION TO ALL NEW NON-RESIDENTIAL CUSTOMERS AND SUBMITTAL OF WATER USE PLAN BY NEW LARGE FACILITIES

Description: Provider distributes a conservation packet to all new non-residential customers when an application is submitted for a building permit. The conservation packet includes educational material on the best commercially available technologies, current codes affecting water use at each facility, and a standard form approved by the Department to be filled out by the new customer. This form will function as the water use plan to be submitted by all new non-residential customers who may potentially use 10 acre-feet or more of water annually. Turf-related facilities and large-scale cooling facilities are excluded from the requirement to submit a water use plan as they are required in the Industrial Conservation Program to submit a water conservation plan. Utilization of the plan helps increase the awareness of best available technologies as they become available within each industry.

The water use plan shall identify all water uses anticipated by the user and the water conservation measures to be utilized. The water use plan shall include at least the following information (where applicable):

- Water conservation education/training for employees
- Use of alternative water sources (i.e., CAP, effluent, poor quality groundwater, or other non-groundwater sources)
- Operating TDS or conductivity for cooling towers and total cooling capacity
- Use of best available technologies in accordance with existing process uses (i.e., recirculating systems for process water, alternative dust control methods, automatic shut-down devices to eliminate continual running of water)
- Any plans for the reuse of wastewater or process water at the facility
- Type of landscaping and irrigation system

Implementation: The provider shall distribute a conservation packet as described above to all new non-residential customers prior to construction when an application is submitted for a building permit (private water companies shall distribute a conservation packet when contacted for new service). As a condition of new service, those non-residential customers who will potentially use 10 acre-feet or more of water annually, excluding turf-related facilities and large-scale cooling facilities shall be required to submit a water use plan as outlined in the description above to be reviewed by water provider staff. The Department will supply to the provider the necessary form and guidelines to complete the water use plan at the time the provider enters this program. Where necessary, provider staff shall make recommendations for efficient use of water to the new user.

Monitoring/Reporting:

The Annual Report required by A.R.S. § 45-632 shall include a copy of the sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the agreement. The provider shall also include in the annual report the number of conservation packets distributed annually and the number of water use plans received during the reporting year.

In addition to the annual reporting requirements, the provider shall maintain and submit to the Department upon request the water use plans submitted by non-residential customers.

**NON-RESIDENTIAL EXTERIOR
STANDARD RCM**

EXTERIOR AUDIT PROGRAM FOR EXISTING NON-RESIDENTIAL CUSTOMERS

Description: Trained auditors visit existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) to examine outdoor water use practices, or materials are supplied for a self-audit of outdoor water use practices. These audits are designed for landscape water use and include a survey of water use practices or scheduling, a visual leak detection analysis, examination of the current irrigation system maintenance and efficiency, and an examination of existing employee education or training. After the audit has been conducted the facility compiles information into a post-audit report to be submitted to the provider. Provider staff reviews and makes recommendations to improve water usage at the facility.

Implementation: The provider shall notify all existing non-residential customers (excluding turf-related facilities, large-scale cooling facilities and public rights-of-way) of the availability of an audit performed on-site free of charge by staff or hired consultants, or a self-audit packet which shall include at a minimum information on how to conduct a self-audit and complete a post-audit report to be returned to the provider. The provider shall evaluate each post-audit report and make recommendations to the facility for water conservation potential. Existing non-residential customers that collectively receive at least 20 percent of the total non-residential water use in the provider's service area (excluding turf-related facilities, large-scale cooling facilities, and landscaped public rights-of-way) shall be audited either by the non-residential customer or by a trained auditor. The measurement of 20 percent of non-residential use shall be based on the most current water use records available when the provider enters the program. Annual progress requirements will be negotiated between the Department and the provider with the provider required to complete all the necessary audits by January 1, 2010. **This RCM shall be implemented in conjunction with the Interior Audit for Existing Facilities.**

Monitoring/Reporting: The Annual Report required by A.R.S. § 45-632 shall include the number of facilities audited by the provider and the number of facilities who conducted a self-audit and returned a post-audit report to the provider within the reporting year. The annual report shall include the name and type of facility audited and its annual water use for the previous year. The provider shall maintain and make available for the Department's inspection the name, address, phone number, contact person, and audit report for each facility audited.

In addition to the annual reporting requirements, the provider shall collect and maintain information on selected facilities that utilize this program in order to make an effective evaluation of the program. The number of records and type of data to be maintained will be determined at the time the provider enters the program. Note: This evaluation will be used to improve effectiveness of RCMs. It will not be used to require any modification of the negotiated Non-Per Capita Conservation Program agreement.

**NON-RESIDENTIAL EXTERIOR
STANDARD RCM**

LANDSCAPE ORDINANCE OR CONDITION OF NEW SERVICE FOR NEW FACILITIES

Description: Provider requires new non-residential customers to limit water-intensive landscaping, install efficient irrigation systems, and limit water features/fountains.

Implementation: The provider shall adopt and enforce an ordinance or establish conditions of new service requiring new non-residential customers with greater than or equal to 10,000 square feet of landscapable area to comply with the following, as applicable: (1) If the new non-residential customer is not a hotel or motel, the water-intensive landscaped area within the facility shall not exceed an area calculated by adding 10,000 square feet plus 20 percent of the facility's landscapable area in excess of 10,000 square feet. Schools, parks, cemeteries, golf courses, common areas of housing developments, and public recreational facilities with water-intensive landscaping greater than or equal to 10 acres are exempt from this provision, as they are regulated under the individual user requirements; (2) If the new non-residential customer is a hotel or motel, the water-intensive landscaped area within the facility shall not exceed an area calculated by adding 20,000 square feet plus 20 percent of the facility's landscapable area in excess of 20,000 square feet; (3) Only efficient irrigation systems shall be used; and (4) The use of water features and/or fountains shall be limited and shall be equipped with water recycling or reuse systems.

Monitoring/Reporting: The Annual Report required by A.R.S. § 45-632 shall include a copy of the ordinance or sample conditions of new service agreement used to meet the implementation requirements for this RCM. This shall be submitted one time only (the first year of compliance with the Non-Per Capita Conservation Program) unless there is an amendment to the ordinance or agreement.

APPENDIX 5F.3

***EDUCATION
STANDARD
REASONABLE CONSERVATION MEASURE***

**EDUCATION
STANDARD RCM**

PUBLIC INFORMATION AND EDUCATION PROGRAM

Description: Educating customers about the need for water conservation is essential to the success of any conservation program. There are many ways to educate and inform the public, including the distribution of information packets, brochures, pamphlets, bill inserts, newsletters, fact sheets and calendars, "tents" in restaurants, conducting workshops; and radio and TV public service announcements (PSAs). Another method is the provision of information that allows customers to compare their current water use with the amount of water they used during the preceding billing period and the same billing period in the previous year. Water use tracking information may be effective because it is personalized and is updated and repeated with every billing cycle. Printed materials and PSAs can be effective for many months to the extent that they are heard, seen or read and acted upon.

Implementation: A minimum of once a year, the provider shall supply all customers with information on the following, using methods agreed to at the time of acceptance into the Non-Per Capita Conservation Program: (1) the significance and relevance of water conservation, and methods of conserving water, including information about conservation devices and behavioral changes that save water; and (2) how to participate in other conservation programs offered by the provider under the Non-Per Capita Conservation Program (e.g., audits, rebates, workshops). The provider shall also develop and distribute with every billing, conservation billing in either graphical or numerical format (i.e., graphs or numbers) showing current water use, the amount of water used during the preceding billing period and the same billing period in the previous year.

Monitoring and Reporting Requirements: The Annual Report required by A.R.S. § 45-632 shall include examples of the materials provided, a report on the methods used to contact customers, and the number of materials distributed in any form.

APPENDIX 5F.4

***SUBSTITUTE
REASONABLE CONSERVATION MEASURES***

SUBSTITUTE RCM LIST

The Substitute RCM List for the Pinal Active Management Area (AMA) is filed in the Department's Pinal AMA office. A copy of the list effective as of the date of this plan follows in this Appendix. Because the list may be amended in the manner described below, a current list is available upon request from the Pinal AMA office.

PROCEDURE FOR MODIFICATION OF SUBSTITUTE RCM LIST

- 1. A municipal provider who seeks to add an RCM to the Substitute RCM List for the Pinal AMA may apply at any time to the director for a modification of the list. The application shall be made on a form prescribed and furnished by the director.*
- 2. The director shall review each request for a modification of the Substitute RCM List. The director may request additional information from the applicant and may seek information from other sources as may be necessary to determine whether the list should be modified.*
- 3. If the director approves the addition of an RCM to the Substitute RCM List, the director shall place the RCM on a supplemental list that shall be considered an addendum to the Substitute RCM List. The supplemental list shall be available upon request from the Pinal AMA office.*
- 4. The director may add an RCM to the Substitute RCM List for the Pinal AMA on the director's own initiative if the director determines that implementation of the RCM, either by itself or in combination with one or more other RCMs on the Substitute RCM List, will result in a water use efficiency for the applicable water use category equivalent to the efficiency that would result from implementation of one or more of the required RCMs for that water use category.*

SUBSTITUTE REASONABLE CONSERVATION MEASURES

RCM	Description	Implementation
Residential Interior		
<i>Low Flow Plumbing Rebate Program for Existing Residential Customers</i>	<i>Provider grants a financial rebate to residential homeowners who elect to replace existing high water use toilets, showerheads and faucets with low-flow devices, consistent with the AWEPA.</i>	<i>Negotiated and approved by the director.</i>
<i>Toilet Leak Detection & Repair Program for Existing Residential Customers</i>	<i>Provider supplies non-toxic dye tablets and instructions to conduct a toilet leak detection analysis and suggestions for leak repairs.</i>	<i>Negotiated and approved by the director.</i>
<i>Landscape Retrofit Program for Existing Residential Customers</i>	<i>Provider grants financial incentives, including rebates, to existing customers for conversion of existing high water use landscapes to low water use landscapes. Provider supplies examples of landscape plans, plant lists, irrigation methods, and information on soil amendments and preparation.</i>	<i>Negotiated and approved by the director.</i>
Residential Exterior		
<i>Effluent Reuse - Recycled Wastewater for Existing or New Residential Customers</i>	<i>Provider develops an effluent reuse system for existing or new housing developments and provides incentives for the reuse of effluent at facilities capable of utilizing the resource.</i>	<i>Negotiated and approved by the director.</i>
<i>Low Water Use Ordinance or Condition of New Service for New Residential Customers</i>	<i>Provider develops conditions of new service or ordinances that limit turf and other water-intensive landscaping in all new developments consistent with the new single family and multifamily residential exterior water use models in the Third Management Plan for the provider's AMA.</i>	<i>Negotiated and approved by the director.</i>
Non-Residential Interior		
<i>Retrofit Distribution or Rebate Program</i>	<i>Provider supplies retrofit kits or provides rebates to non-residential facilities that elect to retrofit existing high water using plumbing fixtures to low water using fixtures consistent with the AWEPA.</i>	<i>Negotiated and approved by the director.</i>
<i>Process Water Conservation Program for New or Existing Facilities</i>	<i>Provider develops a program that identifies the non-residential customers within the provider's service area with the greatest conservation potential and assigns conservation measures aimed at reducing water use in these facilities.</i>	<i>Negotiated and approved by the director.</i>
Non-Residential Exterior		
<i>Rebate Program for Low Water Use Landscaping & Irrigation System Improvements for Existing or New Facilities</i>	<i>Provider offers financial incentives (e.g., rebates, reduced rates, wholesale prices on plant materials, or financing packages) to non-residential facilities to replace existing landscaping and irrigation system or installation of new landscaping or irrigation systems with low water use landscaping and efficient irrigation technologies.</i>	<i>Negotiated and approved by the director.</i>
<i>Effluent and Wastewater Use Incentives for Existing and New Facilities</i>	<i>Provider offers incentives for conversion of existing irrigation systems or installation of new irrigation systems capable of utilizing effluent or wastewater (includes all water discharged after an industrial or commercial use, excluding effluent) for landscape watering.</i>	<i>Negotiated and approved by the director.</i>

SUBSTITUTE REASONABLE CONSERVATION MEASURES

<i>RCM</i>	<i>Description</i>	<i>Implementation</i>
<i>Non-Residential Exterior (continued)</i>		
<i>Ordinance or Condition of Service Requiring The Use of Effluent for New Public Recreation Facilities</i>	<i>The provider adopts an ordinance or condition of service requiring the use of effluent in new public recreation facilities, including turf-related facilities and other facilities with a water-intensive landscaped area of 10 or more acres. The ordinance or condition of new service shall require the owner of the facility to demonstrate to the Department that the facility will be designed and operated in a manner that conserves water. Publicly owned rights-of-way are exempt from this requirement. For purposes of this RCM, "turf-related facility" and "water-intensive landscaped area" have the meanings prescribed by section 6-301 of Chapter 6.</i>	<i>Negotiated and approved by the director</i>
<i>Education</i>		
<i>Training Opportunities</i>	<i>Provider offers on-going seminars, workshops, lectures, and videos to promote water conservation to residential or non-residential customers, employees, educators, or professional interest groups. Topics could include landscape design and maintenance, interior water conservation methods, or general background information on regional water supply issues.</i>	<i>Negotiated and approved by the director.</i>
<i>Youth Programs</i>	<i>Provider assists local school district(s) to provide water conservation and water supply information to students. Assistance can include classroom presentations, teacher education programs, curriculum, and field trips to water-related facilities.</i>	<i>Negotiated and approved by the director.</i>
<i>Demonstration Sites and Exhibits</i>	<i>Provider establishes, maintains, and promotes facilities, sites, and exhibits that demonstrate water conservation including demonstration gardens, demonstration homes, conservation exhibits, and public activities.</i>	<i>Negotiated and approved by the director.</i>
<i>Media-Related Outreach</i>	<i>Provider to develop a media-outreach program focused on water conservation including news articles, features, and series, magazine stories, radio and television public service announcements, and television specials. Additionally, novelty items to promote local or regional conservation efforts can be distributed including buttons, posters, and bumper stickers.</i>	<i>Negotiated and approved by the director. Must include a method to evaluate effectiveness and market penetration.</i>

SUBSTITUTE REASONABLE CONSERVATION MEASURES

<i>RCM</i>	<i>Description</i>	<i>Implementation</i>
System-Related Measures		
<i>Water Audit Program</i>	<i>Provider has an audit conducted by a trained auditor of the distribution system, accuracy of the water agency records, and systems control equipment. The audit should identify, quantify, and verify water and revenue losses to allow the provider to select and implement programs to reduce water and revenue losses. Such examination should be performed annually to update the results of earlier audits. The audit must include an analysis of the water audit results and possible corrective measures including resulting costs, feasibility, and savings.</i>	<i>Negotiated and approved by the director.</i>
<i>Leak Detection Program</i>	<i>Provider implements a leak detection program in conjunction with a water audit (see substitute RCM - Water Audit). The leak detection program must address losses due to leaks, unauthorized use (street, sewer, and fire departments), water department maintenance, and meter under-registration and must include repair, maintenance, and meter testing. Flushing frequency and exercise of valves should also be accounted for.</i>	<i>Negotiated and approved by the director.</i>
<i>Conservation-Based Rate Structure</i>	<i>Provider develops a water rate structure which results in slowing the increase in water consumption that traditionally accompanies increases in population and per capita income. Pricing structures which may result in conservation are: increasing block rate, lifeline rate, seasonal rate, and excess demand surcharge. To be effective, the rate structure must clearly send a conservation message. The rate structure established should ensure that customers receive the proper signal that allows them to make a choice as to whether or not to implement conservation measures. Additionally, the water rate revision should be accompanied by a public awareness campaign, a water conservation device distribution program, pamphlets on low water use landscaping, or other conservation measures to increase the effectiveness of the program.</i>	<i>Negotiated and approved by the director.</i>
<i>Conservation Coordinator</i>	<i>Provider employs a staff person whose sole responsibility is to ensure the implementation of effective water conservation programs. The employee would act to coordinate conservation efforts in conjunction with utility staff and be the primary contact for the public regarding conservation information. The coordinator could initiate an information campaign including: pamphlets, fact sheets, bill stuffers, public service announcements, and press releases. The coordinator can also coordinate direct conservation activities other than education.</i>	<i>Negotiated and approved by the director. Includes submittal of a complete job description for the position as well as annual goals and objectives for the program.</i>
<i>Water Tampering and Water Waste</i>	<i>Water provider adopts and enforces ordinances or implements policies regarding excessive and wasteful use of water. Meter reading staff and customers report water theft where ordinances are not applicable. Staff performs regular checks of water delivered and water used in distinct parts of the service areas where there is greater susceptibility to water theft.</i>	<i>Negotiated and approved by the director.</i>

APPENDIX 5G
INCIDENTAL RECHARGE
METHOD FOR CALCULATION OF AN INCIDENTAL RECHARGE FACTOR
PINAL ACTIVE MANAGEMENT AREA

Hydrologic Studies

The following information must be provided:

1. A copy of a hydrological study that demonstrates the amount of water supplied by the municipal provider for use within its service area during each of the preceding five years (prior to application to the Non-Per Capita Conservation Program) and the amount of incidental recharge as calculated below that occurred within the municipal provider's service area during each of those years.
2. A copy of a hydrological study that projects the average annual amount of water that the municipal provider will supply for use within its service area during the management period and the average annual amount of incidental recharge as calculated below that will occur within the municipal provider's service area during the management period.

Calculation of the Incidental Recharge and an Incidental Recharge Factor

The following information should be included in the hydrologic studies:

1. A map showing:
 - a. Service area boundary.
 - b. Location of turfed areas and/or unlined lakes greater than 10 acres where water is provided by the municipal provider applying for the Non-Per Capita Conservation Program.
 - c. Location of areas which are served by septic systems.
2. For turfed and water acres:
 - a. Combined actual turfed and water acres (of facilities greater than or equal to 10 acres).
 - b. Plant consumptive use (actual or using consumptive use rate published in the Second Management Plan), or measured evaporation rates.
 - c. Total annual volume of water applied to facility. If only a portion of the water used is supplied by the municipal provider, document the percentage supplied by the provider who is applying for the Non-Per Capita Conservation Program and from other sources.
3. For septic systems:
 - a. The number of acres of lots served by septic systems and the number of septic tanks per acre.
 - b. Volume of water supplied to that system and documentation of the volume of water incidentally recharged. If only a portion of the water used is supplied by the municipal provider, document the percentage supplied by the provider and from other sources.
4. Total annual volume of water supplied by a provider for use within its service area.
5. Any other data which contribute to incidental recharge within the service area. The Department will review the data and take them under consideration.

APPENDIX 5G (continued)
INCIDENTAL RECHARGE
METHOD FOR CALCULATION OF AN INCIDENTAL RECHARGE FACTOR
PINAL ACTIVE MANAGEMENT AREA

Calculations

1. Turf

$$\begin{array}{rclcl} \text{Annual} & & \text{Total} & & \\ \text{Incidental} & = & \text{Annual Water} & - & \\ \text{Recharge (AF)} & & \text{Used (AF)} & & [\text{Turfed Acres} \times \text{Consumptive Use AF/Ac.}] \end{array}$$

2. Artificial Lakes

$$\begin{array}{rclcl} \text{Annual} & & \text{Total} & & \\ \text{Incidental} & = & \text{Annual Water} & - & \\ \text{Recharge (AF)} & & \text{Used (AF)} & & [\text{Lake Acres} \times \text{Evaporation Rate AF/Ac.}] \end{array}$$

3. Septic Systems

$$\begin{array}{rclclclcl} \text{Annual} & & \text{Total Acres} & & \text{Number of} & & \text{Total Annual} & & \% \text{ Water} \\ \text{Incidental} & = & \text{of} & \times & \text{Septic Systems} & \times & \text{Water Use} & \times & \text{Returned for} \\ \text{(AF)} & & \text{Septic System} & & \text{per Acre} & & \text{per Household (AF)} & & \text{Recharge} \end{array}$$

4. **Maximum Estimated Annual Incidental Recharge (AF)** = #1 + #2 + #3 + other data approved by the Department

$$\begin{array}{rcl} \text{Incidental Recharge} & & \text{Annual Incidental Recharge (\#4)} \\ \text{Factor} & = & \text{Total Annual Volume of Water Pumped} \\ & & \text{and Received.} \end{array}$$

APPENDIX 5H
RESIDENTIAL COMPONENT GPCD CALCULATION DESCRIPTION
ALTERNATIVE CONSERVATION PROGRAM
PINAL ACTIVE MANAGEMENT AREA

Residential:

1. Existing Single Family and Multifamily Allotment
 - a. Determine Base Year 2000 Single Family Population
Determine Base Year 2000 Multifamily Population
Sum of Base Year 2000 SF and MF Population
 - b. Multiply Base Year 2000 Residential Population
by Existing Residential SF/MF GPCD Target (Appendix 5E.1)

Add the products; multiply by the number of days in the calendar year and divide the product by 325,851.
 - c. Result is a volumetric allotment, in acre-feet, for existing residential users with expected GPCD reductions included in the annual target calculation.
2. New Single Family and New Multifamily Allotment:
 - a. New Single Family Housing Units added since June 30, 2000
New Single Family Population (post - 2000) for the calendar year
New Multifamily Housing Units added since June 30, 2000
New Multifamily Population (post - 2000) for the calendar year
 - b. Multiply New Single Family Housing Units and New Multifamily Housing Units by
Exterior model GPHUD Rates for New Development:

$$\begin{array}{l} \text{Single Family} = 149 \text{ GPHUD} \\ \text{Multifamily} = 77 \text{ GPHUD} \end{array}$$

Add the products; multiply by the number of days in the calendar year; divide by 325,851.
 - c. Multiply the sum of the New Single Family Population and the New Multifamily Population by the Interior model GPCD rate of 57 for new residential development.
 - d. Add the results from 2a and 2b: The result is an annual volumetric allotment, in acre-feet, for new residential uses.
3. Add together the Existing Single Family and Multifamily Allotment to the New Single Family and Multifamily Allotment to calculate the Residential Allotment.

APPENDIX 5I
DROUGHT TOLERANT / LOW WATER USE PLANT LIST
PINAL ACTIVE MANAGEMENT AREA

TREES		
Genus	Species	Common Name
<i>Acacia</i>	<i>abyssinica</i>	Abyssinian Acacia
	<i>aneura</i>	Mulga
	<i>coriacea</i>	
	<i>erioloba</i>	Camel Thorn
	<i>farnesiana (smallii, minuta)</i>	Sweet Acacia
	<i>greggii</i>	Catclaw Acacia
	<i>salicina</i>	Willow-leaf Acacia
	<i>schaffneri</i>	Twisted Acacia
	<i>stenophylla</i>	Shoestring Acacia
	<i>willardiana</i>	Palo Blanco
<i>Brahea</i>	<i>armata</i>	Mexican Blue Palm
	<i>edulis</i>	Guadalupe Palm
<i>Bursera</i>	<i>hindsiana</i>	Copal
	<i>microphylla</i>	Elephant Tree
<i>Caesalpinia</i>	<i>cacalaco</i>	Cascalote
<i>Casuarina</i>	<i>cunninghamiana</i>	River She Oak
	<i>equisetifolia</i>	Horsetail Tree
	<i>stricta</i>	Coast Beefwood
<i>Cercidium</i>	<i>floridum</i>	Blue Palo Verde
	<i>microphyllum</i>	Foothill Palo Verde
	<i>praecox</i>	Sonoran Palo Verde, Palo Brea
<i>Eucalyptus</i>	<i>erythrocorys</i>	Red Cap Gum
	<i>formanii</i>	Forman's Eucalyptus
	<i>leucoxydon</i>	White Ironbark
	<i>microtheca</i>	Coolibah
	<i>papuana</i>	Ghost Gum
	<i>populnea</i>	Poplar-leaf Eucalyptus
	<i>spathulata</i>	Narrow-leaf Gimlet
	<i>torquata</i>	Coral Gum
<i>Lysiloma</i>	<i>candida</i>	Palo Blanco
	<i>microphylla var. thornberi</i>	Desert Fern
<i>Pistacia</i>	<i>atlantica</i>	Mt. Atlas Pistache
	<i>chinensis</i>	Chinese Pistache
<i>Pithecellobium</i>	<i>flexicaule</i>	Texas Ebony
	<i>mexicanum</i>	Palo Chino
	<i>pallens</i>	Apes-earring

TREES		
Genus	Species	Common Name
<i>Prosopis</i>	<i>alba</i>	Argentine Mesquite
	<i>chilensis</i>	Chilean Mesquite
	<i>emoryi</i>	Emory Oak
	<i>glandulosa</i> var. <i>torreyana</i>	Texas Honey Mesquite
	<i>pubescens</i>	Screwbean Mesquite
	<i>velutina</i> (<i>juliflora</i>)	Honey Mesquite
<i>Quercus</i>	<i>buckleyi</i>	Texas Red Oak
	<i>emoryi</i>	Emory Oak
	<i>suber</i>	Cork Oak
	<i>turbinella</i>	Shurb Live Oak
	<i>virginiana</i>	Southern Live Oak
<i>Washingtonia</i>	<i>filifera</i>	California Fan Palm
	<i>robusta</i>	Mexican Fan Palm

SHRUBS		
Genus	Species	Common Name
<i>Acacia</i>	<i>angustissima</i>	Fern Acacia
	<i>constricta</i>	White Thorn Acacia
	<i>rigidula</i>	Blackbrush Acacia
	<i>millefolia</i>	Santa Rita Acacia
	<i>berlandieri</i>	Guajillo
	<i>notabilis</i>	
	<i>rigens</i>	Needle Acacia
	<i>craspedocarpa</i>	Leather-leaf Acacia
<i>Aloysia</i>	<i>gratissima</i>	Bee Bush
	<i>lycioides</i>	Bee Bush
	<i>macrostachya</i>	Sweet-stem
	<i>wrightii</i>	Oreganillo
<i>Anisacanthus</i>	<i>andersonii</i>	Anderson's Honeysuckle
	<i>quadrifidus</i>	Flame Honeysuckle
	<i>thurberi</i>	Desert Honeysuckle
<i>Artemesia</i>	<i>ludoviciana</i>	White Sage
	<i>lentiformis</i>	Quail Bush
<i>Atriplex</i>	<i>canescens</i>	Fourwing Saltbush
	<i>hymenelytra</i>	Desert Holly
	<i>nummularia</i>	Old Man Saltbush
<i>Baccharis</i>	<i>sarothroides</i>	Desert Broom
<i>Caesalpinia</i>	<i>gilliesii</i>	Desert Bird of Paradise
	<i>mexicana</i>	Mexican Bird of Paradise
	<i>pulcherrima</i>	Red Bird of Paradise
<i>Calothamnus</i>	<i>quadrifidus</i>	
	<i>villosus</i>	Woolly Netbush
<i>Cassia (Senna)</i>	<i>artemisioides</i>	Feathery Cassia
	<i>biflora</i>	Twin Flower Cassia
	<i>goldmannii</i>	
	<i>nemophila</i>	Desert Cassia
	<i>phyllodinea</i>	Silver-leaf Cassia
	<i>wislizenii</i>	Shrubby Cassia
<i>Cistus</i>	<i>incanus (villosus)</i>	Rockrose
<i>Dalea</i>	<i>bicolor var. argyraea</i>	Silver Dalea
	<i>frutescens</i>	Black Dalea
	<i>pulchra</i>	Indigo Bush
	<i>versicolor var. sessilis</i>	Wislizenus Dalea
<i>Encelia</i>	<i>farinosa</i>	Brittle Bush
<i>Ephedra</i>	<i>nevadensis var. aspera</i>	Boundary Ephedra
	<i>trifurca</i>	Mormon Tea

SHRUBS		
Genus	Species	Common Name
<i>Eremophila</i>	<i>glabra</i> <i>maculata</i>	Spotted Emu Bush Emu Bush
<i>Eriogonum</i>	<i>fasciculatum</i>	California Buckwheat
<i>Jatropha</i>	<i>cardiophylla</i> <i>cinerea</i> <i>dioica</i>	Limberbush Lomboy Leatherstem
<i>Justicia</i>	<i>californica</i> <i>candicans (ovata)</i> <i>spicigera</i> <i>sonorae</i>	Chuparosa Red Justicia Mexican Honeysuckle Palm Canyon Justicia
<i>Leucophyllum</i>	<i>candidum</i> <i>frutescens</i> <i>laevigatum</i> <i>langmanniae</i> <i>pruinatum</i> <i>zygophyllum</i>	Silver Sage (cv. 'Silver Cloud', 'Thunder Cloud') Texas Sage (cv. 'Green Cloud', 'White Cloud', 'Compacta') Chihuahuan Sage Sierra Madre Sage Fragrant Sage Blue Ranger
<i>Lycium</i>	<i>andersonii</i> <i>brevipes</i> <i>fremontii</i>	Anderson Thornbush Frutilla Wolfberry
<i>Pyracantha</i>	<i>coccinea</i>	Firethorn
<i>Salvia</i>	<i>clevelandii</i> <i>greggii</i> <i>leucantha</i> <i>leucophylla</i> <i>dorrii</i> <i>chamaedryoides</i>	Chapparal Sage Autumn Sage Mexican Bush Sage Purple Sage Desert Sage Blue Sage
<i>Senna(Cassia)</i>	<i>artemisioides</i> <i>biflora</i> <i>goldmannii</i> <i>nemophila</i> <i>phyllodinea</i> <i>wislizenii</i>	Feathery Cassia Twin Flower Cassia Desert Cassia Silver-leaf Cassia Shrubby Cassia
<i>Vauquelinia</i>	<i>corymbosa</i> <i>californica</i>	Narrow-leaf Rosewood Arizona Rosewood

GROUNDCOVERS		
Genus	Species	Common Name
<i>Acacia</i>	<i>redolens</i>	Trailing Acacia (cv. 'Desert Carpet')
<i>Atriplex</i>	<i>semibaccata</i>	Australian Saltbush
<i>Baccharis</i>	cv. 'Centennial'	Centennial Baccharis
<i>Dalea</i>	<i>greggii</i>	Trailing Dalea
<i>Gazania</i>	<i>rigens</i>	Trailing Gazania

SUCCULENTS/ACCENTS		
Genus	Species	Common Name
<i>Agave</i>	<i>americana</i>	Century Plant
	<i>colorata</i>	Mescal Ceniza
	<i>parryi</i>	Parry's Agave
	<i>victoriae - reginae</i>	Royal Agave
	<i>vilmoriniana</i>	Octopus Agave
	<i>murpheyi</i>	Murphy's Agave
<i>Aizoaceae - Ice Plant Family</i>		
<i>Carpobrotus spp.</i>	<i>chilensis</i>	Ice Plant
	<i>edule</i>	Hottentot Fig
<i>Malephora</i>	<i>crocea</i>	Ice Plant
<i>Cephalophyllum</i>	cv. 'Red Spike'	Red Spike Ice Plant
<i>Drosanthemum</i>	<i>speciosum</i>	Dewflower
<i>Mesembryanthemum</i>	<i>crystallinum</i>	Common Ice Plant
<i>Aloe</i>	<i>barbadensis (vera)</i>	Medicinal Aloe
	<i>ferox</i>	Tree Aloe
	<i>saponaria</i>	Tiger Aloe
	<i>marlothii</i>	
	<i>striata</i>	Coral Aloe

SUCCULENTS/ACCENTS		
Genus	Species	Common Name
<i>Cactaceae - Cactus Family</i>		
	<i>Carnegiea gigantea</i>	Saguaro
	<i>Cereus hildmannianus</i>	Hildmann's Cereus
	<i>Echinocactus grusonii</i>	Golden Barrel
	<i>Echinocereus engelmannii</i>	Engelmann's Hedgehog
	<i>Ferocactus acanthodes</i>	Compass Barrel
	<i>Ferocactus wislizenii</i>	Fishhook Barrel
	<i>Lophocereus schottii</i>	Senita
	<i>Opuntia acanthocarpa</i>	Buckhorn Cholla
	<i>Opuntia basilaris</i>	Beavertail Prickly Pear
	<i>Opuntia bigelovii</i>	Teddy Bear Cholla
	<i>Opuntia engelmannii</i>	Desert Prickly Pear
	<i>Opuntia ficus-indica</i>	Indian Fig
	<i>Opuntia violacea</i>	Purple Prickly Pear
	<i>Pachycereus marginatus</i>	Mexican Organ Pipe
	<i>Stenocereus thurberi</i>	Arizona Organ Pipe
	<i>Trichocereus candicans</i>	Argentine Trichocereus
<i>Dasyliirion</i>	<i>acrotriche wheeleri</i>	Green Desert Spoon Sotol Desert Spoon
<i>Fouquieria</i>	<i>macdougalii splendens</i>	Chunari Ocotillo
<i>Hesperaloe</i>	<i>campanula funifera parviflora nocturna</i>	Bell Flower Coahuilan Hesperaloe Red Hesperaloe
<i>Nolina</i>	<i>matapensis microcarpa</i>	Tree Bear Grass Bear Grass
<i>Yucca</i>	<i>aloifolia baccata brevifolia elata rigida rostrata</i>	Spanish Bayonet Banana Yucca Joshua Tree Soaptree Yucca Blue Yucca Beaked Yucca

ANNUAL WILDFLOWERS		
Genus	Species	Common Name
<i>Cosmos</i>	<i>bipinnatus parviflorus sulphureus</i>	Yellow Cosmos
<i>Dimorphotheca</i>	<i>sinnuata</i>	African Daisy
<i>Helipterum</i>	<i>roseum</i>	Pink Everlasting

ANNUAL WILDFLOWERS		
Genus	Species	Common Name
<i>Linaria</i>	<i>texana</i>	Toadflax
	<i>pinnifolia</i>	Toadflax
	<i>maroccana</i>	Toadflax
<i>Mentzelia</i>	<i>involucrata</i>	Morning Stars
	<i>lindleyi</i>	Blazing Stars
<i>Phacelia</i>	<i>campanularia</i>	California Bluebell
	<i>tanacetifolia</i>	Scorpion Weed
<i>Plantago</i>	<i>insularis</i>	Indian Wheat
<i>Ursinia</i>	<i>calenduliflora</i>	
	<i>chrysanthemoides</i>	
	<i>speciosa</i>	

PERENNIAL WILDFLOWERS		
Genus	Species	Common Name
<i>Anigozanthos</i>	<i>flavidus</i>	Kangaroo Paw
	<i>viridis</i>	Kangaroo Paw
	<i>manglesii</i>	Kangaroo Paw
<i>Arctotis</i>	<i>acaulis</i>	African Daisy
<i>Penstemon</i>	<i>baccharifolius</i>	Rock Penstemon
	<i>barbatus</i>	Scarlet Penstemon
	<i>eatonii</i>	Firecracker Penstemon
	<i>palmeri</i>	Palmer's Penstemon
	<i>parryi</i>	Parry's Penstemon
	<i>pseudospectabilis</i>	Canyon Penstemon
	<i>spectabilis</i>	Royal Penstemon
	<i>superbus</i>	Superb Penstemon
<i>Sphaeralcea</i>	<i>ambigua</i>	Globe Mallow
<i>Tagetes</i>	<i>palmeri(lemmoni)</i>	Mt. Lemmon Marigold
	<i>lucida</i>	Mexican Mint Marigold
<i>Zephyranthes</i>	<i>candida</i>	Zephyr Flower
	<i>citrina</i>	Fairy Lily
	<i>grandiflora</i>	

VINES		
Genus	Species	Common Name
<i>Bougainvillea</i>	<i>spectabilis (brasiliensis)</i>	Bougainvillea

APPENDIX 5J
LOST & UNACCOUNTED FOR WATER REQUIREMENTS
PINAL ACTIVE MANAGEMENT AREA

Lost & Unaccounted For Includes:

Leaks:

- Distribution Lines
- Sewer Lines
- Storage Tanks
- Storage Ponds
- Hydrants
- Other

Breaks:

- Distribution Lines
- Sewer Lines
- Mains
- Hydrants
- Other

Measurement Errors:

- Meter Under/Over-Registration
- Source Meter Errors
- Flumes/Weirs Errors

Evaporation

Illegal Connections/Water Theft

Phreatophyte Uses

Water System Uses Include:

- Residential Metered Deliveries
- Non-Residential Metered Deliveries
- Standpipe Uses
- Fire Flow
- Hydrant Meter Reading
- Hydrant Flow Tests
- Fire Sprinkler System Flow Tests
- Construction
- Dust Control
- Line Flushing (distribution, sewer, or treatment facility)
- Street Cleaning
- Storm Drain Flushing
- Water Tests & Pressure Tests
- Well Purging